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S. Hrg. 103–868

ADMINISTRATION'S PROPOSAL TO SEEK MODIFICATION OF THE 1972 ANTI-BALLISTIC MISSILE TREATY (Ex. L, 92–2)

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Administration's Proposal to Seek M...

HEARINGS

BEFORE THE

COMMITTEE ON FOREIGN RELATIONS
UNITED STATES SENATE

ONE HUNDRED THIRD CONGRESS

SECOND SESSION

MARCH 10 AND MAY 3, 1994

Printed for the use of the Committee on Foreign Relations

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ADMINISTRATION'S PROPOSAL TO SEEK MODIFICATION OF THE 1972 ANTI-BALLISTIC MISSILE TREATY (Ex. L, 92–2)

THURSDAY, MARCH 10, 1994

U.S. Senate,
Committee on Foreign Relations,
Washington, DC.

The committee met, pursuant to notice, at 10:05 a.m. in room SD–419, Dirksen Senate Office Building, Hon. Claiborne Pell (chairman of the committee) presiding.

Present: Senators Pell, Biden, Kerry, Simon, and Lugar.

The Chairman. The Foreign Relations Committee will come to order.

I am very pleased to welcome John Holum, the Director of the ACDA.

This is actually your first appearance before our committee since your confirmation last fall. As I understand it, you will inform our committee as to the administration's plans regarding changes in the 1972 ABM Treaty.

On March 22, Mr. Holum will change subjects and will be back before our committee again for the beginning of hearings on the Chemical Weapons Convention.

It occurs that there are really three issues here. The first is whether these changes are in our interest and in the interest of our particular allies, Great Britain and France. The second is whether the THAAD system is a smart and affordable way to go in a time of changing defense requirements. The third issue is whether these changes are, in effect, amendments that would require the consent of the Senate.

I have long believed that both branches should be involved when major decisions regarding our security needs are made. I also believe that the Senate's consent must be sought for treaties and for substantive changes to treaties. The ABM Treaty is the cornerstone of modern arms control and it seems to me only proper that both the Senate and the administration be comfortable with any proposals regarding the treaty.

In January, I wrote the President, "The proposed changes raise issues regarding the relationship between the Senate and the executive branch with respect to treaty-making and interpretation. In particular, questions arise as to the proper role of the Senate in the event that the United States and Russia were to agree to change the treaty and whether the proposed changes would reverse an interpretive understanding reached between the Senate and the executive branch when the treaty was ratified."

So we will be looking to our fellow Senators for their views on this.

I will now turn to Senator Lugar.

Senator LUGAR. Thank you very much, Mr. Chairman.

I join you in welcoming our distinguished witnesses this morning.

The committee turns its attention to the future of the 1972 ABM Treaty, a future that involves important and complex questions for United States national security policy, diplomatic relations with other nations, and budgetary priorities.

In particular, what this administration and this Senate decide in the coming months with regard to the ABM Treaty will govern the fate of our theater ballistic missile defense programs for many years to come. The Gulf war match-up of scud and Patriot, the North Korean nuclear program and that countries test of a missile that could reach Japan underscore the importance of these programs. The United States must have the ability to defend its forces abroad, defend the territory of friendly countries, hold coalitions together, and stabilize situations in which a country would be threatened by weapons of mass destruction carried by missiles.

Moreover, theater ballistic missile programs are integral and a complementary part of any overall counterproliferation strategy. Theater ballistic missile defense programs are not restricted by the ABM Treaty. However, the ABM Treaty does not define a clear line between unrestricted theater defenses and restricted strategic defenses.

This ambiguity or state of uncertainty will continue to generate questions which could delay, derail, or alter many of our theater programs. Clearly, if the treaty is to continue in force, some clarity on this matter must be achieved and that is the proposition that has enjoyed broad consensus.

My interest today is in learning more about the kinds of criteria the administration might consider putting forward in any negotiations with the Russians. After studying and understanding the details, then the most important question will be can the modifications to the ABM Treaty which the administration will negotiate gain the same measure of bipartisan support that has been achieved with regard to our theater ballistic missile defense programs and our efforts over several administrations to clarify the ABM Treaty.

In my judgment, to achieve any such consensus, any clarifications or understandings on the ABM Treaty which will restrict United States programs or could tend to have that effect must be judged to be substantive modifications and must be submitted to the Senate for its advice and consent.

For its part, the Senate will have an obligation to address two important questions. First, what effect will any proposed modifications have on U.S. programs designed to counter the developing theater ballistic missile threat? Second, how would any such modifications and their potential effects on current and future TMD programs be impacted by an enlargement of the number of parties to the treaty?

The second question is important because the administration's efforts to clarify the ABM Treaty come on the heels of the breakup of the Soviet Union. That is raising the issue of succession to the treaty.

If the United States is to accept limits on its defenses vis-a-vis other countries, such as North Korea, Iran, or Libya, then the Senate must understand what the Russian interest is in multiplying the number of signatories to the treaty and, if other states of the former Soviet Union are to become signatories, what their interests and their roles might be as signatories.

Furthermore, with regard to other states of the former Soviet Union, the Senate would need to understand the practical implications of enlarging the number of signatories. For example, how would the ABM Treaty's limitation of 100 fixed land-based ABM interceptors apply to each?

As we have seen with the Lisbon Protocol and the START I Treaty, succession is a very complicated and difficult matter.

Again, I am not in a position to comment on the merits or demerits of any particular outcome. I note only that a change in the party or parties to this treaty can logically be viewed as an important matter of substance. The ability of the administration to cobble together the kind of consensus necessary to move forward with a modified ABM Treaty will depend critically on whether its proposal on succession is deemed to constitute a substantive modification requiring submission to the Senate for its advice and consent.

In summary, Mr. Chairman, let me make two points. First, any attempt at further line drawing between unrestricted theater defenses and restricted strategic defenses can be accomplished in part only by changing definitions in the original text.

Even clarifying definitions usually entails changing definitions or, at minimum, the interpretations of definitions by one or another of the parties to the treaty.

Second, I have managed enough arms control treaties during the Senate ratification process to understand the temptation of administrations to finesse the issue of a substantive modification to an international agreement by turning it into a so-called "technical" or "procedural" issue, thereby negating the need to resubmit the modification to the Senate for advice and consent. I would simply offer advice to the negotiators. As you continue your negotiations in Geneva, operate on the assumption that you will have to defend your actions, your negotiating positions, and the resulting agreement before the Congress, and that the negotiating record may become an integral part of the Senate's analysis and deliberations as this body performs its role in the ratification process.

Mr. Chairman, many of us remember well the clash in 1987 between the Senate and the executive branch over the so-called "broad versus narrow interpretations" of the ABM Treaty. I have no desire to reopen that, but simply would reiterate that a similar clash over the role of the Senate in treaty-making during deliberations on a revised ABM Treaty could be avoided.

I would ask unanimous consent that my longer prepared statement be included in the record, and I ask consent to submit questions to be answered for the record.

The CHAIRMAN. Without objection.

Senator LUGAR. I thank the chair.

[The prepared statement of Senator Lugar follows:]

PREPARED STATEMENT OF SENATOR RICHARD G. LUGAR

MR. CHAIRMAN: I join you in welcoming our witnesses this morning.

This morning the Committee turns its attention to the future of the 1972 ABM Treaty, a future that involves important and complex questions for U.S. national security policy, diplomatic relations with other nations, and budgetary priorities.

In particular, what this administration and this Senate decide in the coming months with regard to the ABM Treaty will govern the shape of our Theater Ballistic Missile Defense programs for years to come. The Gulf War match-up of SCUD and PATRIOT, the North Korean nuclear program, and that country's test of a missile that could reach Japan, underscore the importance of these programs. The United States must have the ability to defend its forces abroad, defend the territory of friendly countries, hold coalitions together, and stabilize situations in which a country may be threatened by weapons of mass destruction carried by missiles.

Moreover, theater ballistic missile defense programs are an integral and complementary part of any overall counterproliferation strategy.

This logic has enjoyed a healthy level of bipartisan consensus, even during the days when SDI divided us. Theater Ballistic Missile Defense figured prominently in the programs of the Reagan and Bush administrations and, after its Bottom-Up Review, the Clinton administration has assigned these programs a prominent place in its defense budgets and counterproliferation strategy.

For our part, in the Congress, a consensus in favor of Theater Ballistic Missile Defense programs is evidenced by the broad bipartisan support garnered for the Missile Defense Act.

Theater Ballistic Missile Defense programs are not restricted by the ABM Treaty. However, the ABM Treaty does not Lugar define a clear line between unrestricted theater defenses and restricted strategic defenses. This ambiguity or state of uncertainty will continue to generate questions which could delay, derail, or alter many of our theater programs. Clearly, if the Treaty is to continue in force, some clarity on this matter must be achieved—and that is a proposition that has also enjoyed a broad consensus.

The bipartisan Missile Defense Act endorsed modifications to the ABM Treaty for this purpose, and the Bush administration took up this issue in talks between Dennis Ross of the State Department and Russian Deputy Foreign Minister Mamedov.

Now, the Clinton administration is taking its turn at trying to negotiate in the Geneva Standing Consultative Commission a clearer line between unrestricted theater defenses and restricted strategic defenses.

My interest today is in learning more about the kinds of criteria that the administration might consider putting forward in any negotiations with the Russians. I am here to learn, not to comment on the merits or demerits of any proposed modification to the ABM Treaty. In theory, such criteria could be high or low, good or bad, simple or complex, quantitative or qualitative, and so.

I note only that any line drawn between unrestricted theater defenses and restricted strategic defenses will have the effect of limiting what forces the U.S. could deploy in defending against the growing threat of theater ballistic missiles, many of which could carry weapons of mass destruction.

After studying and understanding the details, then the most important question will be: Can the modifications to the ABM Treaty, which the administration will negotiate, gain the same measure of bipartisan support that has been achieved with regard to our Theater Ballistic Missile Defense programs and our efforts over several administrations to clarify the ABM Treaty?

In my judgment, *to achieve any such consensus, any clarifications or understandings on the ABM Treaty which will restrict U.S. programs, or which could tend to have that effect, must be judged to be substantive modifications, and must be submitted to the Senate for its advice and consent.*

For its part, the Senate will have an obligation to address two important questions:

—First, what effect will any proposed modifications have on U.S. programs designed to counter the developing theater ballistic missile threat? and

—Second, how would any such modifications and their potential effects on current and future TMD programs be impacted by an enlargement of the number of parties to the Treaty?

This second question is important, because the administration's efforts to clarify the ABM Treaty come on the heels of the break-up of the Soviet Union, thus raising the issue of succession to the Treaty.

If the United States is to accept limits on its defenses vis-a-vis other countries such as North Korea, Iran or Libya, then the Senate must understand what the Russian interest is in multiplying the number of signatories to the Treaty. and, if other states of the former Soviet Union are to become signatories, what their interests and roles might be.

Furthermore, with regard to other states of the former Soviet Union, the Senate would need to understand the practical implications of enlarging the number of signatories. For example, how would the ABM Treaty's limitation of 100 fixed, land-based ABM interceptors apply to each? As we have seen with the Lisbon Protocol and the START 1 Treaty, succession is a very complicated and important matter.

Again, I am in no position to comment on the merits or demerits of any particular outcome. *I note only that a chance in the party or parties to this Treaty can logically be viewed as an important matter of substance. The ability of the administration to cobble together the kind of consensus necessary to move forward with a modified ABM Treaty will defend critically on whether its proposal on succession is deemed to constitute a substantive modification requiring submission to the Senate for its advice and consent.*

Mr. Chairman, in summary, any attempt at further line-drawing between unrestricted theater defenses and restricted strategic defenses can be accomplished in part only by changing definitions in the original text. Even "clarifying" definitions usually entails changing definitions or, at minimum, the interpretations of definitions by one or another parties to a treaty.

Secondly, I have managed enough arms control treaties during the Senate ratification process to understand the temptation of administrations to finesse the issue of a substantive modification to an international agreement by turning it into a technical or procedural issue, thereby negating the need to resubmit the modification to the Senate for advice and consent. I would simply offer a word of advice to our negotiators: As you continue your negotiations in Geneva, operate on the assumption that you will have to defend your actions, your negotiating positions and the resulting agreement before the Congress, and that the negotiating record may become integral to the Senate's analysis and deliberations as this body performs its role in the ratification process.

Mr. Chairman, many of us remember all too well the clash in 1987 between the Senate and the executive branch over the so-called "broad versus narrow" interpretations of the ABM Treaty. I have no desire to reopen that wound but simply to reiterate that a similar clash over the role of the Senate in treaty-making must be avoided.

Our security interests, our diplomatic relations, our defense programs, our budget, and the ABM Treaty itself would be best served if we work together to preserve the Senate's key role in the treaty-making process, including advice and consent to modifications to treaties, as well as the consensus which has been built up on Theater Ballistic Missile Defense.

The CHAIRMAN. Thank you.

Director Holum, we are glad you are here. We welcome you and look forward to hearing from you.

STATEMENT OF HON. JOHN HOLUM, DIRECTOR, U.S. ARMS CONTROL AND DISARMAMENT AGENCY; ACCOMPANIED BY STANLEY A. RIVELES, ACTING U.S. COMMISSIONER, STANDING CONSULTATIVE COMMISSION

Mr. HOLUM. Thank you, Mr. Chairman. Let me also add that I am accompanied by Lt. Gen. Malcolm O'Neill, who heads up the BMDO, Ballistic Missile Defense Organization, in the Pentagon, and he is obviously in a position to offer important technical responses today, and by Dr. Stanley Riveles, who is our Acting Commissioner to the Standing Consultative Commission, which is charged with negotiating the clarifications to the ABM Treaty.

I want to thank all the Members of the committee for this opportunity to testify on the administration's ABM Treaty policy and on the negotiations in the SCC to clarify certain aspects of the treaty.

I have come to testify about something I know you are deeply committed to. The Committee on Foreign Relations of the United States Senate helped save the ABM Treaty in the 1980's. Together with Senators Nunn and Byrd, it stood up resolutely against threats that would have undermined not only the agreement itself but also the Senate's constitutional role in its ratification.

Those are strong statements. But let me say that, as Director of an agency that has remained independent and been revitalized, in large part thanks to this committee, I have some special insights into things you have helped save.

I would like to make two main points at the outset. First, the Senate's rightful role in this process is being respected and affirmed. Second, I hope that when this process of clarifying the treaty has run its course, we will all agree that the treaty has been modernized and strengthened.

The ABM Treaty is not just another salutary international agreement. It was described in 1990 by one of my distinguished Republican predecessors, Gerard Smith, as the most fundamental arms agreement yet reached between the United States and the Soviet Union, a critical component of U.S. security policy. He declared that the ABM Treaty is truly the foundation for the future.

That phrase has been justified by the treaty's success. By strictly limiting nationwide defenses against strategic ballistic missiles, it has prevented the kind of escalating race between offense and defense that has long characterized military technology in other fields.

In short, the ABM Treaty is the bedrock of strategic arms control. It remains crucial to stability, to the START I and START II reductions, and to the longer term strategic arms control opportunities. That is why the administration shares the committee's concern for insuring the treaty's vitality as an instrument of arms control and U.S. security well into the future.

Let me note several key decisions.

When then-Acting Director Tom Graham was testifying before this committee last year, Chairman Pell asked him about the correct interpretation of the ABM Treaty. On July 13, 1993, Mr. Graham informed the committee of the Clinton administration's determination that the traditional or narrow interpretation is the correct one. That traditional interpretation was a key predicate for the administration's comprehensive review of missile defense policy. The bottom-up review, or the BUR, resulted in a shift away from the goal of a national strategic missile defense.

In today's changed security environment, the threat of even a limited strategic missile attack has decreased. But, at the same time, the danger posed by the proliferation of ballistic missiles among third countries outside the U.S. and the former Soviet Union has increased.

Accordingly, our priorities are being redirected to defending against theater ballistic missile threats to our military forces overseas, to our allies and our friends.

Our commitment to a strong ABM Treaty, however, also means ensuring that it can be adapted to new challenges and circumstances. The need to make clear the distinction between ABM systems for counter and strategic ballistic missiles, which are strictly limited by the treaty, and nonABM systems, which are not limited, is made timely by the prospect of third country missile proliferation and the demonstrated willingness of backlash states to target not just U.S. expeditionary forces but to hold civilian populations hostage by targeting cities.

Some might argue that we have over-estimated such threats and that we do not need to defend against advanced theater ballistic missiles with significantly expanded ranges. While such ballistic missiles may not be widely available to states of potential concern to us at this moment, many of these states are all too capable of acquiring the necessary technology, and our TMD programs will not be ready for deployment for years.

But, in any event, the over-arching issue before us today is preserving the United States option to respond to the emerging threats identified in the bottom-up review within the context of a modernized ABM Treaty.

As a staunch supporter of the ABM Treaty, I am convinced that it must not come to be viewed as an obstacle to the development of necessary U.S. tactical defenses. Forcing a choice between our legitimate defense needs and the treaty risks undermining the treaty.

While we have determined that the ABM demarcation is necessary, we have also affirmed that it cannot be done unilaterally. Accordingly, the administration has proposed a solution in the treaty's implementing body, the Standing Consultative Commission. At the same time, we also agreed that the treaty should be multilateralized in light of the breakup of the Soviet Union.

During the regular 5 year ABM Treaty review that took place last September and October, we began to explore these issues with Russia and the other participating states, Ukraine and Belarus. We were reassured during this review that other states shared our view of the treaty's principal obligations and of the need to strengthen the treaty.

The U.S. Delegation to the SCC tabled our proposals on demarcation and multilateralization in sessions that began in November 1993, and concluded in February. While I cannot go into detail on these negotiations in open session because of the confidentiality provisions of the treaty, I am prepared to discuss these matters in closed session to follow.

I can tell you that the United States has not been negotiating on a take-it-or-leave-it basis. While a good deal of progress has been made, these are authentic negotiations during which the other delegations have laid down their own positions and ideas, some of which differ significantly from our own.

Despite the differences, the negotiations have made it clear that there exists a significant degree of commonality in the approach to TMD among the participants. For example, they do agree with us that the threat of a third country ballistic missile proliferation is real, that there is a shared interest in defending against this threat, that the treaty must be clarified to allow for adequate theater missile defenses, and that it should allow those defenses capable of countering theater missiles comparable to those already deployed.

To sum up, let me just emphasize seven points about the administration's ABM policy that I think are definitive.

First, President Clinton has firmly reaffirmed our commitment to the treaty. We consider it indispensable to stability, to START I and START II, and to longer-term opportunities.

Second, the Clinton administration, as you know, has repudiated unilateral reinterpretations of the ABM Treaty that would have done it grave harm.

Third, we have withdrawn the broad revisions to the treaty that had previously been proposed in the Standing Consultative Commission.

Fourth, we have recognized the need to specify the dividing line between ABM systems limited by the treaty and nonABM systems which are not limited. Both parties understood when the treaty was negotiated that this demarcation was left unresolved. The time has come to resolve it.

Fifth, this clarification will be accomplished by agreement in the SCC as envisioned in the treaty, not unilaterally.

Sixth, what the final agreed clarification is called as a legal matter must properly await the outcome of the negotiations. We cannot discern the form until we know the substance.

Seventh, the administration will not bypass or end-run Congress in this matter. The President has directed the administration to consult closely with Congress before any decision is taken as to whether any SCC agreement on the boundary between ABM and TMD systems requires the approval of the Senate.

In closing, I would just emphasize that we are determined not to harm the treaty by acting unilaterally as to the legislative branch, just as we have not acted unilaterally as to our treaty partners.

Let me also voice the hope that all of us involved in this important debate, including many outside government as well as within it, not force a choice between fealty to the treaty as drawn in 1972 and our legitimate defense needs today. That kind of false choice is how bad decisions get made and, ultimately, it would not protect either the treaty or our country.

I thank you for this opportunity to come before you.

I believe General O'Neill also has some remarks.

[The prepared statement of Mr. Holum follows:]

PREPARED STATEMENT OF JOHN D. HOLUM

First, I want to thank all the members of the Committee for this opportunity to testify on the Administration's ABM Treaty policy and on the negotiations in the Standing Consultative Commission to clarify certain aspects of the Treaty.

I've come to testify about something to which I know you are deeply committed. The Committee on Foreign Relations of the United States Senate helped save the ABM Treaty in the 1980s. Together with Senators Nunn and Byrd, it stood up resolutely against threats that would have undermined not only the agreement itself, but also the Senate's constitutional role in its ratification.

I would like to make two main points at the outset. First, the Senate's rightful role in this process is being respected and reaffirmed. Second, I hope that when this process of clarifying the Treaty has run its course, we will all agree that the Treaty has been modernized and strengthened.

The ABM Treaty is not just another salutary international agreement.

It was described in 1990 by one of my distinguished Republican predecessors, Gerard Smith, as "the most fundamental arms agreement yet reached between the U.S. and the Soviet Union—a critical component of U.S. security policy.1' He pointed out that the Treaty provided "the necessary building blocks for seizing the current opportunity for improved security at lower levels of confrontation"—which came to fruition in the remarkable achievements that we all know as START I and START II. The ABM Treaty will also be crucial as we look beyond these current agreements toward potential additional steps to reduce strategic weapons in the future. As Gerard Smith concluded, "the ABM Treaty is truly 'the foundation for the future'.

Such praise has been justified and vindicated by the Treaty's success. By strictly limiting nationwide defenses against strategic ballistic missiles, it has prevented the kind of escalating race between offense and defense that has long characterized military technology in other fields. For more than three decades now, the Treaty has largely spared us the dangers—and the expense—of a futile competition between ever-more capable strategic offensive weapons and attempts to defend against them.

In short, the ABM Treaty is the bedrock of strategic arms control. It remains crucial to stability, to the START I and START II reductions, and to longer-term strategic arms control opportunities.

That is why the Administration shares the Committee's concern for ensuring the Treaty's viability as an instrument of arms control and U.S. security well into the future. And that is precisely the aim of the Administration's decisions on the Treaty. Let me note several key decisions.

When then-Acting Director Tom Graham was testifying before this Committee last year, Chairman Pell asked him about the correct interpretation of the ABM Treaty. On July 13, 1993, Mr. Graham informed the Committee of the Clinton Administration's determination that the '1traditional" or "narrow" interpretation is the correct one. This long-standing interpretation—that the Treaty prohibits the development, testing, and deployment of sea- based, air-based, space-based, and mobile land-based ABM systems and components, regardless of the kind of technology used—is the very interpretation this Committee has defended throughout the life of the Treaty.

This traditional interpretation was a key predicate for the Administration's comprehensive review of missile defense policy. The Bottom-Up Review (BUR) resulted in a shift away from the goal of a national strategic missile defense. In today's changed security environment, the threat of even a limited strategic missile attack has decreased. But at the same time, the danger posed by the proliferation of ballistic missiles among third countries outside the U.S. and the former Soviet Union has increased. Accordingly, our priorities are being redirected to defending against theater ballistic missile threats to our military forces overseas, allies and friends.

This new appreciation of the importance of theater missile defenses (TMD) has paved the way for our formal withdrawal of past proposals to amend the ABM Treaty, including proposals regarding:

- additional ABM deployment sites;
- additional interceptor missiles at launch sites;
- elimination of restrictions on sensors;
- elimination of restrictions on the development and testing of ABM systems; and
- elimination of restrictions on the transfer of ABM systems and components.

The withdrawal of these proposals demonstrates beyond doubt the Clinton Administration's reaffirmation of the Treaty and its recommitment to its original aims.

Our commitment to a strong ABM Treaty, however, also means ensuring that it can be adapted to new challenges and circumstances. Given its unlimited duration, we must make sure that new technologies and threats do not undermine its long-term viability. The need to make clear the distinction between ABM systems for countering strategic ballistic missiles (which are strictly limited by the Treaty), and non-ABM systems (which are not limited), is made timely by the prospect of third-country missile proliferation and the demonstrated willingness of backlash states to target not just U.S. expeditionary forces, but to hold civilian populations hostage by targeting cities. This clarification is unavoidable, given the acknowledged ambiguity of the Treaty as it stands.

Some argue that we have overestimated such threats, and that we do not need to defend against advanced theater ballistic missiles with significantly expanded ranges. While such ballistic missiles may not be widely available to states of potential concern to us at this moment, many of these states are all too capable of acquiring the necessary technology—and our TMD programs will not be ready for deployment for years.

In any event, the overarching issue before us today is preserving the United States *option* to respond to the emerging threats identified in the BUR—*within* the context of a modernized ABM Treaty. As a staunch supporter of the ABM Treaty, I am convinced that it must not come to be viewed as an obstacle to the development of necessary U.S. tactical defenses. Forcing a choice between our legitimate defense needs and the Treaty risks undermining the Treaty.

While we have determined that ABM demarcation is necessary, we have also affirmed that it cannot be done unilaterally. Accordingly, the Administration has proposed a solution in the Treaty's implementing body, the Standing Consultative Commission. (As we all know, this Committee has been a staunch defender of the SCC's central role in maintaining the ABM Treaty.) At the same time, we also agreed that the Treaty should be multilateralized in light of the break-up of the Soviet Union.

During the regular five-year ABM Treaty Review that took place last September and October, we began to explore these issues with Russia and the other participating states, Ukraine and Belarus. We were reassured during this review that other states shared our view of the Treaty's principal obligations and of the need to strengthen the Treaty.

The U.S. delegation to the SCC tabled our proposals on demarcation and multilateralization in sessions that began in November 1993 and concluded in February 1994. While I cannot go into detail on these negotiations in open session due to the confidentiality provisions of the Treaty, I am prepared to discuss these matters in the closed session to follow.

I can tell you that the United States has not been negotiating on a take-it-or-leave-it basis. While a good deal of progress has been made, these are authentic negotiations during which the other delegations have laid down their own positions and ideas, some of which differ significantly from our own. We are striving to take account of their concerns, while assuring that we can meet our twin objectives of providing for effective theater missile defenses and preserving the Treaty.

Despite the differences, the negotiations have made it clear that there exists a significant degree of commonality in the approach to TMD among SCC participants. For example, they agree with us that the threat of third-country ballistic missile proliferation is real; that there is a shared interest in defending against this threat; that the Treaty must be clarified to allow for adequate theater missile defenses; and that it should allow defenses capable of countering theater missiles comparable to those already deployed.

To sum up, let me emphasize seven central points about the Administration's ABM policy.

First, President Clinton has reaffirmed our commitment to the Treaty. We consider it indispensable to stability, to the START I and START II reductions, and to longer-term strategic reduction opportunities.

Second, the Clinton Administration has repudiated unilateral reinterpretations of the ABM Treaty that would have done it grave harm. The day after Tom Graham communicated this to the Committee, Chairman Pell issued a press release in which he declared: "This wise decision closes, on a high note, a sad chapter in United States arms control treaty relations and in the relationship between the U.S. Senate and the Executive Branch." The Chairman also noted the continuing importance of the ABM Treaty to our ongoing discussions on offensive nuclear weapons.

Third, we have withdrawn the broad revisions to the Treaty previously proposed in the SCC.

Fourth, we have recognized the need to specify the dividing line between ABM systems limited by the Treaty and non-ABM systems which are not limited. Both parties understood when the Treaty was negotiated that this demarcation was left unresolved. The time has come to resolve it.

Fifth, this clarification will be accomplished by agreement in the SCC—as envisioned in the Treaty—not unilaterally.

Sixth, what the final agreed clarification is called, as a legal matter, must properly await the outcome of the negotiations. We can't discern the form until we know the substance.

And seventh, the Administration will not bypass or end-run Congress in this matter. The President has directed the Administration to consult closely with Congress before any decision is taken as to whether any SCC agreement on the boundary between ABM and TMD systems requires the approval of the Senate.

In closing, I would emphasize that we are determined not to harm the Treaty by acting unilaterally as to the legislative branch—just as we have not acted unilaterally as to our Treaty partners. But let me also voice the hope that all of us involved in this within it), not force a choice between fealty to the Treaty as drawn in 1972 and our legitimate defense needs today. That kind of false choice is how bad decisions get made—and ultimately it would not protect either the Treaty or our country.

Thank you for this opportunity to come before you. I will be happy to take your questions.

The CHAIRMAN. Thank you. General O'Neill.

STATEMENT OF LT. GEN. MALCOLM R. O'NEILL, USA, DIRECTOR, BALLISTIC MISSILE DEFENSE ORGANIZATION

General O'NEILL. Thank you, sir.

Mr. Chairman and Members of the committee, it is an honor to appear before you today as Director of Ballistic Missile Defense and to testify on behalf of the Department of Defense.

I would like briefly to summarize my prepared statement and then answer any questions you might have. If I may, I would like to submit my full statement for the record.

The CHAIRMAN. Without objection.

General O'NEILL. Thank you, sir.

Today the ballistic missile threat to our forward deployed forces, friends and allies is real and growing. Ballistic missile deployments are expected to increase worldwide despite stepped up efforts to inhibit their proliferation and, simultaneously, several countries are developing weapons of mass destruction.

Of particular concern are missile programs in India, Pakistan, Iran, Iraq, Syria, Libya, and especially North Korea, all of which have or could develop weapons of mass destruction for use on their ballistic missiles. In general, this represents a threat against which I am charged to develop highly effective theater missile defenses.

Mr. Chairman, in closed session I can provide more particulars providing the missile threat.

Because of the wide recognition of this existing and emerging ballistic missile threat, the administration and Congress have provided clear and strong guidance to the DOD regarding the development and deployment of highly effective theater missile defenses. The Joint Requirements Oversight Council, which belongs to the Joint Chiefs of Staff, validated the Theater Missile Defense Mission Needs Statement in November of 1991.

During the past few years, Congress has clearly taken a leading role in setting the nation's theater missile defense priorities. The Missile Defense Act of 1991 stated, "A goal of the United States is to provide highly effective theater missile defenses to forward deployed and expeditionary elements of the armed forces of the United States and to friends and allies of the United States."

That same year, the Defense Authorization Act specifically endorsed the Department's plans to develop, test, and field prototypical systems for the THAAD, Theater High Altitude Area Defense System, by 1996.

More recently, the Fiscal Year 1994 Defense Authorization Act addressed both ABM Treaty issues and the national security imperative of developing and deploying highly effective theater missile defenses.

In light of the threat, congressional direction and valid military requirements, the department has developed what we consider the appropriate TMD program. We are pursuing what we call a Core set of TMD acquisition programs, consisting of an enhanced version of the land-based PATRIOT air and missile defense system, called Patriot advanced capability 3, a sea-based Aegis cruiser/standard missile block IV–A lower tier system, and the land-based Theater

High Altitude Area Defense, or THAAD, missile system. That makes up the core of our TMD program.

The Department's TMD approach also includes the exploration of advanced capabilities, with one of the three candidates that we are studying right now entering the acquisition process in fiscal year 1998. These advanced capabilities include a potential sea-based wide area defense, a defense of the maneuver force, called Corps SAM, and a boost-phase interceptor program.

We are purposely pursuing in the Ballistic Missile Defense Organization a multifaceted TMD approach, with the THAAD interceptor program as the centerpiece in order to effectively defend our forces against the very capable theater ballistic missile threats that exist today.

The most effective defense against missiles with weapons of mass destruction is to intercept them as high as possible and as far away from the defended area as possible, using a nonnuclear hit-to-kill missile interceptor concept.

The high altitude intercept of weapons of mass destruction, like chemical and biological warheads, destroys these warheads at extended ranges from the defended area. Similarly, intercepting a missile carrying a nuclear warhead at high altitude also negates the nuclear blast produced at lower altitudes.

Our wide area TMD systems allow us to intercept attacking theater ballistic missiles early, often, and further away from their intended targets.

In closing, I would like to note that the department has exhaustively reviewed all BMD program options and selected a prudent and affordable program that will develop and deploy effective missile defenses in consonance with all our international obligations, including the ABM Treaty.

We are pursuing an intensely focused effort to develop and deploy effective theater missile defenses as soon as possible. We want to assure that in a future conflict our service men and women will not be left vulnerable to attack by ballistic missiles and the weapons of mass destruction that they could be carrying. We want to assure that an adversary cannot use ballistic missiles to undermine our ability to build and maintain coalitions and cannot launch missiles that will inflict severe damage upon our military forces and the civilian populations they may be defending.

Mr. Chairman, that concludes my opening remarks. Thank you very much.

[The prepared statement of General O'Neill follows:]

PREPARED STATEMENT OF LT. GEN. MALCOLM R. O'NEILL

Thank you Mr. Chairman and Members of the Committee. I is an honor to appear before you today as Director of the Ballistic Missile Defense Organization (BMDO) and to testify on behalf of the Department of Defense.

I would like to begin by outlining for the Committee the emerging ballistic missile threat and the Department's Theater Missile Defense (TMD) program.

THE EMERGING BALLISTIC MISSILE THREAT

The proliferation of theater-range ballistic missiles armed with chemical, biological and nuclear warheads represents an existing, significant missile threat to deployed forces of the United States, its friends and allies. Ballistic missile deployments are expected to increase worldwide, despite stepped up efforts to inhibit their proliferation, and several countries other than the acknowledged nuclear states are developing both nuclear weapons and ballistic missiles. Similarly, a number of countries have or are developing chemical or biological weapons that could be delivered by ballistic missiles. Many potentially hostile nations now possess tactical ballistic missiles capable of targeting wide areas within Europe, the Middle East, South Korea and Japan. Concerted efforts are underway in several potentially hostile nations to enhance their tactical ballistic missile capabilities with longer-range missiles. These nations are developing indigenous missile production facilities, accurate missile delivery systems, and missile warheads with weapons of mass destruction. Of particular concern are those missile programs in India, Pakistan, Iran, Iraq, Syria, Libya, and especially North Korea—all of which have or could develop weapons of mass destruction for use on their ballistic missiles. This growing comprehensive threat capability, coupled with the unpredictability of potential adversaries, represents a serious threat to vital United States national interests.

I would like to cite James Woolsey, the Director of Central Intelligence, whose judgments on the ballistic missile threat are most relevant:

> Ballistic missiles are becoming the weapon of choice for nations otherwise unable to strike their enemies at long range. Today there are 25 countries, many hostile to our interests * * * that are developing nuclear, biological, or chemical weapons * * * some of these countries may place little stock in the classic theory of deterrence which kept the Cold War from becoming a hot one * * *

A case in point is North Korea. In January of this year Mr. Woolsey noted that "North Korea could already have enough plutonium for at least one nuclear weapon" and that its "missiles, including those in the 1000 kilometer range * * * can be made capable of carrying nuclear, chemical, or biological weapons." In addition, there exists evidence that the North Koreans are embarking on a longer-range ballistic missile as well.

Presently, the Patriot system used during Desert Storm is the only defense against this rapidly evolving tactical ballistic missile threat. However, limitations of the Patriot system in a stand-alone role against a more capable developing ballistic missile threat has become a key concern for future conflicts. In response to this threat, Congress and the Clinton administration have directed that the Department of Defense develop an accelerated program to counter the ongoing widespread proliferation of long-range tactical ballistic missile systems.

THE DEPARTMENT'S BMD PROGRAM

The current structure of the Ballistic Missile Defense program is founded upon the President's endorsement of the 1993 Department of Defense Bottom-up Review (BUR) and the Missile Defense Act of 1991, as subsequently amended in Fiscal Year 1993 and 1994 National Defense Authorization legislation. The BUR, the President's endorsement, and the legislation called for the United States to adhere to the 1972 Anti-Ballistic Missile (ABM) Treaty, while seeking to assure that the Treaty does not constrain development of advanced Theater Missile Defenses to meet the dangerous and growing theater ballistic missile threat.

Congress has consistently demonstrated its strong support for the course the Department is pursuing with regard to Theater Missile Defenses. The Missile Defense Act of 1991, as part of the Fiscal Year 1992 Defense Authorization Act, stated that it is

> "* * * a goal of the United States to provide highly effective theater missile defenses to forward deployed and expeditionary elements of the armed forces of the United States and to friends and allies of the United States."

The Fiscal Year 1992 National Defense Authorization Act also directed the Secretary of Defense to aggressively pursue the development of advanced theater missile defense systems, with the objective of down selecting and deploying such systems by the mid-1990's. Although the Fiscal Year 1993 Defense Authorization Act deleted the mid-1990's reference, the Conference Report directed the Secretary of Defense to develop advanced TMD deployments consistent with sound acquisition procedures and in accordance with a low-to-moderate technical risk and low-to-moderate concurrency program. The conferees noted that the TMD baseline program, contained in the Secretary's July 1992 report on Ballistic Missile Defense, constituted such a program. The conferees specifically endorsed the Department's plans to develop, test, and field User Operational Evaluation Systems (UOES) prototypes for the THAAD system by 1996. More recently, the Defense Authorization Act addressed both ABM Treaty issues and the national security imperative of developing and deploying highly effective theater missiles defenses.

The TMD program, moreover, is based on valid military requirements. The Joint Requirements Oversight Council of the Joint Chiefs of Staff validated the Theater Missile Defense Mission Needs Statement (MNS) in November of 1991. This MNS stated that the United States is required to respond to the full range of theater missile threats that should include capabilities for both "near leak proof" defense of critical assets dispersed over wide areas integrated with capabilities for command, control and communications. The THAAD and Navy wide-area defense programs are specifically designed to address this critical threat

The Bottom-up Review's sober assessment of the existing and emerging ballistic missile threats endorsed the programmatic response my organization embarked on as a result of the Missile Defense Act and JCS requirements. The Bottom-up Review considered a range of TMD options. All options included a "core" set of TMD systems consisting of an enhanced version of the existing land-based Patriot air and missile defense system, called Patriot Advanced Capability Level-3 (PAC-3); the sea-based AEGIS/Standard Missile Block IVA; the land-based Theater High Altitude Area Defense (THAAD) missile system; and battle management/command, control, communications and intelligence (BM/C31). The Department has decided to pursue a TMD approach that includes the Core efforts, but also includes the exploration of three advanced TMD capabilities, with one of those three systems entering the demonstration/validation phase of the acquisition process in Fiscal Year 1998. The three advanced capabilities are supported to provide future improvements to the overall TMD system. These advanced capabilities include: a potential sea-based wide area defense, Corps SAM (which would provide defense for maneuvering ground forces), and a boost-phase interceptor/exoatmospheric system.

The Ballistic Missile Defense Organization, or BMDO, has identified a capability for in-depth defense against tactical ballistic missiles with increased range and carrying chemical, biological or nuclear warheads. The most effective defense against hardened warheads is to intercept them at higher keep-out altitudes by a non-nuclear hit-to-kill missile interceptor. High-altitude interception of chemical and biological warheads destroy these warheads at extended ranges from the defended area. These intercepts also provide auxiliary neutralization of dispersed chemical and biological debris by solar ultraviolet radiation in the quiescent atmosphere at such altitudes. High altitude interception of threat nuclear warheads also negates the nuclear blast produced at lower altitudes, and attenuates detrimental nuclear radiation effects against targeted civilian populations.

As I noted earlier, the Department has designed a comprehensive TMD program to achieve in-depth defense capabilities against TBMs with a spectrum of range and warhead capabilities. The Core program consists of two complementary basic thrusts: (1) upgrades to the existing Army Patriot and Navy Aegis Block IV-A missile interceptor for terminal, or "last-minute," defense against TBMs with short to medium range, and (2) development of the THAAD system to both provide a high-altitude umbrella for the terminal defense systems and extend the battle space against long-range TBMs. The battle space is extended by intercepting attacking missiles at both higher altitudes and ranges that are much further away from the defended assets. This in-depth defense capability against the more capable, developing TBM threat is vital to minimize TBM leakage to the defended area from threat saturation attack strategies based upon synchronized launching of multiple missiles for the penetration of U.S. defenses. In addition, THAAD provides the capability for multiple shoot-look-shoot engagement opportunities due to its longer range capability. Simply stated, THAAD allows us to intercept attacking theater ballistic missiles early, often and further away from their intended targets.

Currently the THAAD program has achieved the design of the three basic components of the UOES system: the THAAD missile interceptor; the supporting TMD ground-based radar; and the battle-management, command and control, and communications infrastructure. The THAAD program is employing advanced missile technologies that were developed in various BMD programs, and places emphasis on downsizing the THAAD interceptor for its rapid worldwide deployment by U.S. transport aircraft The THAAD system is currently being developed in a Demonstration/Validation phase, which will include an extensive flight test program to validate the capabilities of the THAAD interceptor against simulated theater ballistic missile targets.

THE BMD PROGRAM AND THE ABM TREATY

The Department is planning to develop and deploy theater/tactical missile defense systems to counter the projected threat to our forces abroad and to our allies. This mission is well within the purposes and objectives of the ABM Treaty. The objective of the ABM Treaty is to enhance strategic stability by limiting defenses of the parties' territories against *strategic* ballistic missiles. The Treaty does not limit defenses against tactical or theater ballistic missiles, per se. However, the Treaty offers no concrete guidelines for distinguishing between ABM and non-ABM systems and strategic and theater ballistic missiles. This ambiguity is the subject of the administration's current proposal in the Standing Consultative Commission to clarify the Treaty by establishing the demarcation between ABM and non-ABM systems. Meanwhile, all of BMDO's testing and development activities remain compliant, within the narrow interpretation of the ABM Treaty.

To assure compliance with the ABM Treaty, the Department has in place an effective process under which key offices in DoD are responsible for overseeing BMD compliance with all United States arms control commitments. Under this process, the DoD ensures that the implementing program offices adhere to DoD compliance directives and seek guidance from offices charged with oversight responsibility, and certify compliance periodically. This process has worked very effectively to ensure compliance with the Treaty.

The Fiscal Year 1994 Defense Authorization Act directed the Secretary of Defense to review six theater missile defense systems or system upgrades and the Brilliant Eyes system to determine whether the development, testing or deployment of the systems or system upgrades would be in compliance with the ABM Treaty. The Department is complying with the Act's requirements. To date we have delivered reports on the compliance review of five of the systems or system upgrades. We have not and will not exceed the congressionally-mandated limitations on funding prior to the submission of these reports. These reports will clarify the status of our TMD systems relative to the ABM Treaty, as we seek to test, develop and deploy these much-needed systems while observing the limits of the ABM Treaty.

CONCLUSION

The Department has assessed the ballistic missile threat, exhaustively reviewed program options, and selected a prudent and affordable program that will develop and deploy effective missile defenses in consonance with all our international obligations, including the ABM Treaty. The BMD program today is an intensely focused effort to develop and deploy effective theater missile defenses as soon as possible. The Department has identified improved TMD as a high priority so that in a future conflict, our Servicemen and women will not be left vulnerable to the threat of ballistic missile attack and the weapons of mass destruction they may deliver. We want to assure that in a future conflict an adversary cannot threaten to use his ballistic missiles to undermine our ability to build and maintain coalitions, and cannot launch missile strikes that would inflict severe damage upon our military forces and the civilian populations they may be defending.

I look forward to working with the Members of this Committee, as well as the entire Congress, to make highly effective and affordable ballistic missile defenses a reality.

Mr. Chairman, that completes my opening statement I am ready for your questions.

The CHAIRMAN. Thank you very much, indeed.

Before I ask you any specific questions, I want to be sure that I understand the broad situation, where we are.

Isn't what is happening in this whole affair that we have developed a system of defense that might well be outside the terms of the ABM Treaty, so we are seeking to adjust the treaty to conform or to permit us to move ahead with this system of defense? Isn't this a little bit like the tail wagging the dog?

Mr. HOLUM. Essentially, I would expand the sequence a little bit, Senator.

We began with a commitment to the ABM Treaty. The next step was to do an assessment of the threats we faced in the theater realm to respond to those threats in two ways. One was our nonproliferation policy, pursuing the missile technology control regime and trying to constrain the threats through arms control. The other element is to hedge against the possibility that we can not, and there are some indications that we are having problems in that respect, in constraining all of these potential systems that we may face.

As a consequence of that threat assessment that General O'Neill has described, a system was designed based on the threats in order to counter those threats. An analysis was then made to determine whether that solution to the threats was consistent with the ABM Treaty, and the conclusion was reached that it would require clarification of the treaty.

The dividing line between ABM systems and theater systems, because strategic ballistic missile was not defined in the treaty, was left unclear at the time the treaty was agreed. As a consequence of that, the administration has determined that we have to negotiate a clarification of the treaty, that we could not go ahead with the system as it was designed.

The CHAIRMAN. But isn't this exactly what I said, what I suggested?

Mr. HOLUM. It is very similar. I just wanted to add the commitment at the beginning to the ABM Treaty which remains throughout this process. We began with the commitment to maintain the integrity of the treaty.

The CHAIRMAN. What do you think will be the reactions of the Ukrainians, for example, as the treaty is adjusted? Will they be bound by any adjustment that is made? Will we get their assurance, or was that contemplated?

Mr. HOLUM. We are negotiating the question of demarcation and the question of succession in parallel. The Ukrainians are participating in both of those discussions. So I would anticipate—and Dr. Riveles may have a thought on this—I would anticipate that this would not go into force without their concurrence.

The CHAIRMAN. Dr. Riveles.

Dr. RIVELES. If I may add, sir, just one word to that, it is clear from the negotiations in Geneva that every one agrees that anything we agree to in the demarcation area will be binding on the parties themselves to the treaty.

The CHAIRMAN. And this would apply to the other former Soviet states, Kazakhstan and Belarus?

Dr. RIVELES. It would apply to all of those states that choose to be successors to the treaty.

The CHAIRMAN. And which are those states?

Dr. RIVELES. Not all the states have yet spoken. The states which are participating in the negotiations in Geneva, which as Director Holum mentioned are Russia, Ukraine, and Belarus, have clearly made decisions that they wish to become successors to the treaty. Other states have not yet spoken.

The CHAIRMAN. What has been the Russian reaction so far to our proposal?

Mr. HOLUM. That is a little bit difficult to discuss in open session, Mr. Chairman, because of the confidentiality rule. We probably cannot go beyond what I said in my opening statement. There is agreement to resolve this demarcation. There is agreement, we understand, on the question of general scope of the threat. And some progress has been made.

The CHAIRMAN. I think this afternoon you are appearing before us again in a closed session.

Mr. HOLUM. We are prepared to go into closed session here as well, Mr. Chairman, if you like, and we would be happy to do that.

The CHAIRMAN. Good. Are you free to say whether they have made any proposals of their own?

Mr. HOLUM. They have raised some concerns in the negotiations.

The CHAIRMAN. And from the viewpoint of the other nuclear powers, do we have any contact with them on this subject?

Mr. HOLUM. Yes, we have.

We have been in consultation with the other nuclear powers, in particular with the French and the U.K. They have been briefed on our approach. They understand the position we are taking in the negotiations. It is my understanding—I have had some of these consultations myself, but not broad ones—that they are in general agreement with the approach we are taking.

The CHAIRMAN. What about China, which is a nuclear power?

Mr. HOLUM. I am not sure of the extent of our consultations with China. I will have to get back to you on that.

The CHAIRMAN. All right. Would you expect that the deployments would affect the perception of the need for nuclear testing?

Mr. HOLUM. The deployments of these systems?

The CHAIRMAN. Yes.

Mr. HOLUM. I don't see any significant connection. No. I don't think it would interfere with our Comprehensive Test Ban negotiations or our efforts on the moratorium.

The CHAIRMAN. All right. Thank you.

I would turn now to Senator Lugar.

Senator LUGAR. Thank you.

Director Holum, this may be a question that will have to be addressed later. But it is my understanding that the Russians have tabled a counterproposal on TMD demarcation that places constraints on interceptor velocity. If this is true, would this not fundamentally undermine the demonstrated standard proposed by the United States?

Mr. HOLUM. I think you are right, Senator. It has to be dealt with later. To go into any detail on that and to give a responsive answer would require classified information.

Senator LUGAR. All right.

I have no further questions.

The CHAIRMAN. Thank you. Senator Simon.

Senator SIMON. Thank you.

First of all, I apologize in that I am going to have to chair a subcommittee hearing at 11 o'clock.

Let me just ask this general question. I have to say that I am a skeptic when it comes to modifying the ABM Treaty. If every time we or the Russians, or anyone else, develops a weapon that violates the treaty, and then we try to amend the treaty, the treaty is just going to be shot full of holes. The whole purpose of the treaty is to try to prevent that kind of development.

What is wrong with my thinking on that?

Mr. HOLUM. I would just argue that this is not a wholesale revision of the treaty. In fact, it is coming to terms with an issue that was left unresolved at the time the treaty was negotiated. We are not changing obligations under the treaty. We are, rather, defining what those obligations are with greater precision than was possible at the time.

The treaty, when it was negotiated, clearly restricted deployments of strategic ABM systems, antiballistic missile systems. It clearly did not, the parties agreed it did not restrict the deployment of theater ballistic missile defenses. But it left unclear what the boundary was between those two.

What we are proposing to do here, now that we are facing a specific threat, a range of threats over the projected life of deployment of this system, the THAAD system, is to define that boundary. We are doing so in a way, as I emphasized before, that will be agreed by both of the parties. So it is not unilateral.

Senator SIMON. I understand that it is not unilateral. But when you say it is not a wholesale revision, I assume you are saying it is not a big hole locked in the treaty but just a small hole that is locked in the treaty.

Mr. HOLUM. I don't think it is a hole at all. It is defining a hole that was left in the treaty, to carry that metaphor to a conclusion, because there was a determination that theater missiles would not be included.

Senator SIMON. But, in fact, if we do not modify the treaty, we are not able to develop this weapon system by the treaty. Is that correct?

Mr. HOLUM. That's correct.

Senator SIMON. So what it does is it restricts us from developing a weapon system, and that is the purpose of the treaty, from developing and deploying weapon systems.

Mr. HOLUM. That is a significant part of the purpose. But let me broaden the description of the purpose, if I might, just a bit.

I think that the purpose of the treaty is to protect U.S. national security. The broad purpose of the treaty, in which it has been enormously successful, is to prevent the offense/defense arms race cycle that we were potentially engaged in with the Soviet Union by limiting defensive systems, thereby giving both countries the confidence to cut back on their offensive systems. That has come to fruition in START I and START II.

So it is a national security purpose, rather than just limiting weapons. Limiting weapons obviously can be an important element of national security, limiting weapons on their side and our side.

Now we are facing a specific theater threat, which is also important to our national security. What we are trying to do is to permit the ABM Treaty to accommodate a response, a rational and realistic response, to that threat.

Senator SIMON. I will be reading the testimony with interest and will have my staff review it. But I have to say that I remain a skeptic in this area. I think the aim of these treaties is to deescalate the arms race, and my fear is what we are doing with the modification is escalating the arms race.

General, I see you frowning. I conclude you do not agree with my conclusion on that.

General O'NEILL. Sir, I was not frowning. I was taking notes. [General laughter]

Senator SIMON. Oh, then you just frown when you make notes.

General O'NEILL. I frown when I am trying to do it without my glasses. [General laughter]

Senator SIMON. I am concerned. I just speak now for myself and not for anyone else on the committee, but I have real concerns in this area.

The CHAIRMAN. I must say that I share your thoughts in this regard. It seems to me, as I said earlier, it is a little bit like the tail wagging the dog. We develop a weapon system and then we adjust the treaty to it. It should be the other way around.

Senator SIMON. This is what it appears to me we are doing, Mr. Chairman. I appreciate your comments and I thank you.

I thank you, gentlemen, and I thank you, Mr. Chairman.

The CHAIRMAN. I would like to ask General O'Neill this question. Would you expect that a Russian THAAD type deployments, if they occurred, would adversely or have an impact on the British, French, and Chinese perception of the testing?

General O'NEILL. Sir, would you ask me that question again, please.

The CHAIRMAN. Certainly.

Would you expect that Russian THAAD kind of deployments, if in prospect, would affect the British, French, and Chinese perception of the need for nuclear weapons testing?

General O'NEILL. Sir, I don't see a direct connection between a Russian THAAD and the need for nuclear weapons testing on the part of the other nuclear powers.

The CHAIRMAN. Well, what would you expect to be the impact, if any, I would add, of the prospective U.S. and Russian THAAD deployments on prospects for the successful negotiation of an extension of the NPT at the 1995 Review Conference?

Mr. HOLUM. I don't think it will have an impact. It is going to be very hard to trace cause and effect on everything because there are a great many political, security, and other considerations that will bear on countries' decisions regarding extension of the NPT in 1995. We are working very hard on that.

But I think it very unlikely that this will have an impact on that.

The CHAIRMAN. I would turn now to Senator Kerry, and I would add that we expect to go into closed session in the back room as soon as we are through asking questions in the open session.

Mr. HOLUM. Fine. Thank you.

The CHAIRMAN. Senator Kerry.

Senator KERRY. Thank you, Mr. Chairman.

Let me say at the outset that I just left another hearing which Senator is chairing, and he, I know, wants to ask some questions, as do I, hopefully a number in open session before we go into closed session. I think Senator Biden will be coming along before too long.

I would like to kind of walk through this a little bit to see if we cannot establish a record here that is perhaps a little more, at least in public, demonstrative of what is at stake and of where we are going.

It seems to me that, as you look through the record, we have been through some tortured times here in this committee on the subject of the ABM Treaty. We fought tooth and nail to defend this treaty and what it has sought to do with respect to global threat, missiles, missile systems, and the potential for surreptitious, first-strike capacity, and so forth.

There were some dangerous incursions on it during the last 10 or 15 years, during which time I know you were involved in a lot of that, Dr. Holum, and you understand that as well as anybody in the country.

But let's try to talk this out and think this out publicly for a moment.

First of all, would you define for us, and I suppose for the American people, what is different today. What is there in this new world order that is being referred to that predicates that this administration would come forward seeking to fundamentally change the treaty?

You may argue that it is a minor change. I think most of us believe this is an amendment and will require amendment status. What is the threat?

Mr. HOLUM. Well, General O'Neill could probably speak to that better than I can. But, essentially, we are looking at a range of threats during the period when this system will be in place of theater missiles with weapons of mass destruction that could be used to endanger our troops at overseas deployments and to threaten or endanger our friends and allies with missiles and weapons of mass destruction.

There are two ways to counter that, as I suggested earlier. One is to pursue aggressively, as we are doing, our Missile Technology Control Regime and other nonproliferation efforts aggressively. And as a hedge against cases where those efforts might not succeed, we are proposing, the administration is proposing to develop specific theater defensive capability against those threats.

I might say that we have provided the committee responses to a number of questions on this subject that go into some detail on the specifics of the threat, but I cannot discuss them in open session. But North Korea, for example, has been publicly discussed as one example.

Senator KERRY. What is it that you believe is insufficient in the current approach? For instance, with North Korea we are currently pursuing a fairly rigorous inspection regimen with some success—not as much as we want, but we seem to be moving down that track.

It seems to me that if you suddenly start moving on this dual track, you are guaranteeing that you might undermine your ability to pursue the former, because any country looking at the deployment of this kind of system would perceive the potential of increased threat to themselves. This was always the circular argument that we faced previously with how many ABM systems you might be allowed to put out and where.

Mr. HOLUM. That is a very important point, Senator, because I think there is a fundamental difference between the two contexts that we are talking about. When the ABM systems began to be developed, they threatened to interfere with the strategic deterrent already in place of our principal adversary. It was very clear that that kind of offensive/defensive cycle would be inordinately costly, and we thankfully avoided it and reversed it, I think in large part because of the ABM Treaty.

We are now looking at a situation in which there are threats emerging among rogue states, and we have a choice of whether to say should we let those threats go undefended against. The ABM system does not increase the threat to those countries. It responds to the threat. It is a defensive system that responds to the threat that they are preparing to impose on their neighbors and on our potential forces. I see it as a fundamentally different context.

Senator KERRY. Fundamentally different in what sense though—in the context of the perception of the threatened nation? I mean, if a nation that sees this system being put in place with other capacities, conceivably, which is always the threat, will not feel particular safer, would they? Would they not, therefore, respond by wanting either a system that destroys that system or greater capacity to overwhelm it?

Mr. HOLUM. That is potentially true, Senator, but I think it is a long way off.

Any defense system—and I would invite General O'Neill to comment on this—does not guarantee that you have solved the problem forever. But I think the alternative in this context is even more unacceptable, and that is the proposition that rogue states will acquire the capability to threaten our forces and threaten their neighbors with systems that we have no defense against.

Senator KERRY. But we already have no defense against some of those systems.

Mr. HOLUM. That's correct. That's why we want that.

Senator KERRY. But I am saying not necessarily ballistically missile delivered. I mean, any nation that wants to threaten you today can threaten you with a suitcase. So you are really not going to be eliminating the threat of a rogue nation. Moreover, delivery capacity for a rogue nation is something that you can measure pretty accurately as they build it. And it seems to me that nonproliferation nations, if they are going to be in a nonproliferation status that is genuine and authoritative, have an option always of preemptive measures to prevent people from doing that, which is what Israel did with Iraq.

I mean, are you not safer having the Security Council nations or the nuclear powers of the world decide that they are simply not going to permit this kind of delivery system to come on-line? Isn't that a more sensible approach than this?

Mr. HOLUM. It is an equally sensible approach, Senator, and it is an approach that we need to pursue.

We have not always succeeded.

Senator KERRY. I don't understand how you pursue them simultaneously. I mean, one defeats the other.

Mr. HOLUM. Maybe I am not understanding your point. But if we are working in the Security Council and elsewhere, if we are working through international structures like the missile technology control regime, the Nonproliferation Treaty, and the Chemical Weapons Convention to prevent the acquisition of these weapons and their delivery system but at the same time are building defenses as a hedge against cases where we might fail in those control efforts, I do not see a conflict between the two. I think they reinforce each other.

Senator KERRY. Well, I think that is something we are going to have to analyze pretty carefully, and it probably will require some of the questions that we need to do in closed session.

Help me to understand better the inadequacy of theater defenses as currently permitted or as might be envisioned within the confines of the ABM Treaty.

Mr. HOLUM. I would ask General O'Neill to answer that, please.

General O'NEILL. Yes, sir.

The present threat, the existing threat overwhelms the systems that we are now in the process of modifying and for which it was not deemed a compliance, that is, their development was not deemed a compliance problem. That includes the Patriot——

Senator KERRY. The ERINT.

General O'NEILL [continuing.] With the ERINT, and it includes the AEGIS system, the first modification of AEGIS, which would give it Patriot-like capabilities.

I can in the closed session talk specifically about the numbers. But there is a spectrum of threats that exists today, potential threats, for which those systems cannot defend the forward deployed forces, friends, or allies. They are incapable of defense there.

Sir, if I may comment on the subject of counter proliferation, I see active missile defense as just a part of counter proliferation. There is a number of techniques, and Mr. Holum mentioned most of them. The techniques include counterforce, where you would preempt.

I feel, personally, that active missile defense is nothing more than an insurance policy if the other measures fail. If a nation, for one reason or another, acts the way we would consider it to be irrational, and tries to launch an attack against the United States' forces, we would be able to defend our forces actively.

Senator KERRY. I understand that.

But help me to see the kind of threat. You know, we have lived through 40 or 50 years of this and we watched to where you can trace this thing. You can go right back to 1945, then 1948, then the fifties. You can see it. In fact, we led every single escalation with the exception of one. The Russians I think had the first ballistic missile capacity. I guess it was at Sputnik time. But, other than that, we were the first to put them on submarines, we were the first to MIRV, we were the first to go hydrogen from atomic. You can go step by step and we sort of led it.

We kept leading it by virtue of this threat perception.

Now during that period of time, it was based on a theory of Mutual Assured Destruction, and we basically kept ourselves from ever doing it because each side understood the absurdity of doing it.

You are now somehow suggesting to me that, after 50 years of living that way successfully, in a different threat there is something that changes that dynamic so that we are now more threatened than we were previously and we have to do what we did not see fit to do during that period of time now to defeat what threat.

I mean, what nation in its right mind, with a tiny delivery capacity, actually contemplates attacking the United States under those circumstances, given our current arsenal and ability?

General O'NEILL. Well, I can point to Desert Storm for a nation that certainly could have been deterred but was not deterred from launching missiles against coalition partners of the United States.

Senator KERRY. Well, in point of fact I would argue with that. They never, to our knowledge, you guys deny that they used chemicals. And you deny that they used biologicals. They used a minimalist SCUD to try to terrorize the Israelis, hoping that they could drag them into the war. But they did not go all-out because they understood the repercussions.

General O'NEILL. Well, I think had there been no response, had we been incapable of responding to that threat——

Senator KERRY. But the point is we are capable.

General O'NEILL [continuing.] The capability of the Americans and others to keep the coalition together may have been seriously threatened.

Senator KERRY. But it wasn't.

General O'NEILL. We may have been incapable of keeping it together.

Senator KERRY. I understand that. But it was not.

What I fear is this. Let's say you build a capacity to, in effect, neutralize their ability to send a ballistic missile, which is what you are talking about. Correct?

General O'NEILL. [Nods affirmatively].

Senator KERRY. If you have built that, you have negated their sense of security. You have, in effect, translated mutual assured destructive capacity into a first strike capacity.

Now, if I were the other nation sitting there, recognizing that my ballistic missiles have suddenly been rendered useless or close to it in any judgment of threat, I would begin to build and to question how I can defeat that system. So I then have built up an ability to regain my threat capacity in the rest of the world.

I mean, for Russia it was a great advantage to be able to support the Nicaraguans, support the Cubans, support revolution here and there, with an understanding that we could not quite ever go to that clash. But if you had an authoritarian regime emerge in Russia now with nuclear weapons, suddenly recognizing the United States is changing the balance of threat as we have lived with it so that it defeats their ability, you then have encouraged them to regain that ability to be able to maneuver in the world by defeating your system and you have escalated the race to the next level, it seems to me.

You are also saying to them there is in this capacity a secret delivery ability, I think, that smacks of first strike, and any nation that seeks first strike is threatening the very balance that the ABM Treaty has established.

So help me here.

Mr. HOLUM. I might comment on that, Senator.

First, there are some elements of the question you have raised that have profoundly important ramifications for our nuclear posture more generally that we should discuss in closed session, because I think you do raise important questions and I cannot go into them in detail, or really at all, in this open session.

Let me just say, though, that we are not initiating an arms race with North Korea, or with Iraq, or with Iran, or other countries that are interested in acquiring missile technology, missile capability, coupled with weapons of mass destruction.

Those capabilities, those ambitions, already exist.

What we are looking for is a way to counter that which is something other than retaliation from the United States.

Senator KERRY. Well, each nation has the ability—well, let me ask you this question. And I'm sorry to interrupt you.

Are you concerned about this with respect to their ability to deliver against the United States or concerned about it with respect to their ability to deliver to Japan or China, or South Korea?

Mr. HOLUM. The THAAD system and what we are working toward a clarification of the treaty to permit here would not be a defense of the continental United States. It is specifically designed for a theater context.

Senator KERRY. If it is, I understand the velocities issues and the question of re-entry vehicles, et cetera. But is not it possible to conceive of an ability to—I mean, if you are really talking about South Korea versus North Korea, whether it is high altitude versus low altitude is almost going to be moot in the amount and proximity. If you are talking about China, it would depend on where the target is in China. But, again, it seems to me that there ought to be a way to conceive of that within the limits of the ABM Treaty.

After all, each country is permitted to be able to deploy one system, correct? It seems to me one system within the ABM Treaty acts as a sufficient "insurance policy," although I happen to think there is a much better insurance policy, which is to pursue the nonproliferation road far more aggressively than we are.

I have over-used my time. Senator Biden is now here.

The CHAIRMAN. Thank you. Senator Biden.

Senator BIDEN. Thank you, Senator.

I understand we are going to have a chance to ask some of these detailed question in closed session very shortly and as we move on. I apologize for being late. I was chairing committee in the Judiciary Committee.

Mr. Holum, as I understand it, a number of Senators have already asked whether or not what you are proposing is an amendment to the ABM Treaty. I have written the administration and asked about that question. But the responses I get, the response to the latest one is: whether an agreement reached on the boundary between ABM and theater missile defense systems requires the approval of the Senate is a question that can only be answered once we know more about the actual content of the agreement. These letters are silent on other proposals put forward by the administration, that is the proposed change of article VI of the treaty.

Now there is no doubt in your mind that you all have to come back here and get approval, is there? If there is, you have a problem.

Mr. HOLUM. There is no doubt in our mind, and, in fact, it is the President's specific directive to the administration that we will come up and talk with you and determine how this should be handled once it is negotiated.

The administration has not taken a position, has never taken a position, that what we are proposing to do is not an amendment.

Senator BIDEN. All right. That is important because I would not want you—at least speaking for myself; I don't speak for anyone else, but I think my view is reflected by a vast majority of Members on both sides of the aisle. The administration's proposal regarding article VI(a) of the ABM Treaty would clearly be an amendment within the context of the treaty, would clearly be a change in the treaty status, would clearly require ratification by the Senate, and you would clearly be in deep trouble if you walked into the negotiation not understanding that ahead of time, because it would be what I would call "not truth in advertising" to those with whom you are dealing.

Mr. HOLUM. And you underscore, Senator, a very important point in terms of this hearing and other consultations that we are having with the Senate. Senator Lugar made a similar observation.

The reason we want to be in close touch with the committee during the process of negotiation as well as at the end of the negotiation is precisely because we need to have a concurrence as to how it should be handled and what it is.

Senator BIDEN. I have a number of questions for you gentlemen and I think I would only be slowing up the process by continuing in open session here with some of the questions that I could mention in open session but that would still require you to necessary skirt a more detailed answer to the general question—and I am not being critical here.

So, Mr. Chairman, I will refrain until we move into closed session from asking any further questions.

The CHAIRMAN. I thank the Senator.

I now move that we move into closed session in the back room.

[Whereupon, at 11:05 a.m, the committee proceeded in closed session, to reconvene at 10 a.m., May 3, 1994.]

ADMINISTRATION'S PROPOSAL TO SEEK MODIFICATION OF THE 1972 ANTI-BALLISTIC MISSILE TREATY (Ex. L, 92–2)

TUESDAY, MAY 3, 1994

U.S. Senate,
Committee on Foreign Relations,
Washington, DC.

The committee met, pursuant to notice, at 10 a.m., in room SD–419, the Dirksen Senate Office Building, Hon. Claiborne Pell (chairman of the committee) presiding.

Present: Senators Pell, Biden, Kerry, and Simon.

The Chairman. The Committee on Foreign Relations will come to order.

I would like to welcome our witnesses at this second hearing on the administration's proposal to seek modification of the 1972 ABM Treaty.

The witnesses on the first panel will be two well-informed experts, Mr. Brad Hathaway, Associate Director for Systems Development and Production Issues, National Security and International Affairs Division of the GAO, and Mr. Steve Hildreth, specialist in national defense foreign affairs, Congressional Research Service.

The administration, Russia, Ukraine, and Belarus recently completed the third session of the Standing Consultative Commission to explore the U.S. proposal to seek modification for the 1972 ABM Treaty.

The Director of the Arms Control and Disarmament Agency, John Holum, appeared before us on March 10. He made it clear that the administration is prepared to consult with the Senate as matters proceed.

However, the administration has steered clear of any commitment to seek Senate approval to the agreement that might be forthcoming in the continuing discussions.

Our hearing this morning will focus on the administration's ABM proposal, and the possible implications for us and Russia, for other parties, and for other nations if we and the Russians were to decide to deploy the presently envisioned SAD system, or a comparable one, as well as other more advanced and possibly more capable missile defense systems.

The answers we receive today will help us to ascertain whether this negotiating effort and the proposed changes are really in our interest, whether the proposed changes are, in effect, amendments requiring the Senate's consent, and whether new and very costly theater defenses are a smart use of scarce funds in a time of changing defense requirements. I would ask Mr. Hathaway to lead off.

STATEMENT OF BRAD HATHAWAY, ASSOCIATE DIRECTOR FOR SYSTEMS DEVELOPMENT AND PRODUCTION ISSUES, NATIONAL SECURITY AND INTERNATIONAL AFFAIRS DIVISION, GENERAL ACCOUNTING OFFICE; ACCOMPANIED BY: KLEIN SPENCER

Mr. HATHAWAY. All right, sir. Thank you.

I am Brad Hathaway of the General Accounting Office. With me today is Mr. Klein Spencer. It is an honor for both of us to be here to set the stage for your considerations today by providing information on the cost and on the status of DOD's major missile defense concepts and the 1972 Anti-Ballistic Missile Treaty.

At the end of the cold war, U.S. strategy shifted from defense against a massive attack on the nation to protecting U.S. forces and friends from theater missile attacks. Funding for missile defense has reflected that shift.

Last year funding was about $1.1 billion for theater, and about $2.6 billion for national missile defense. This year theater is up about 45 percent, to about $1.6 billion. National missile defense is down about 58 percent, to $1.1 billion.

In last year's bottom-up review, the Department of Defense decided to pursue a program that includes the Army's THAAD, that is the Theater High Altitude Area Defense System, the Army's upgraded Patriot system, called PAC–3, the Navy's sea-based lower tier and the Navy's sea-based upper tier systems, and an airborne boost phase intercept system.

THAAD, PAC–3, and the sea-based lower tier are funded as major acquisitions. The sea-based upper tier and the airborne boost phase interceptor are being pursued as concept exploration activities.

DOD's program involves a two-tier approach, with one system as the upper tier protection and another as the lower tier. This is to intercept threat missiles as far away from U.S. forces or allies as possible, to give the greatest number of intercept opportunities, and the lowest number of missiles that might leak through the system.

THAAD would be the upper tier, and provide a wide area of defense with intercepts either outside of or high in the atmosphere. The PAC–3 system would be the lower tier, with intercepts well inside the atmosphere.

Of course, this multiple coverage would work only for threat missiles which could be engaged by both systems. Single-tier coverage results when defending against missiles with ranges either less than THAAD's minimum coverage or greater than PAC–3's maximum coverage.

The figure on page six of my statement, which is also from the report we provided to you in January, shows a potential sequence of operations. If available, an external early warning sensor would cue the THAAD system.

After receiving target information from the ground-based radar, the THAAD interceptor would be launched toward the target.

A kill assessment would be conducted, and if necessary, a second THAAD interceptor would be launched. If a subsequent kill assessment shows that the target was still not destroyed, the radar would cue the PAC–3 system to engage the target.

THAAD began in 1990 as a hit-to-kill technology demonstration program. In September of 1992, a 4-year demonstration/validation contract was awarded to Lockheed.

The first THAAD flight test is scheduled for late this year. The first unit is to be in the field by 2001. The life-cycle cost estimate for THAAD and the ground-based radar is $14.9 billion.

That is $4.5 billion for development, $5.7 billion for production, and $4.7 billion for operations. This would buy 1,422 interceptors, 99 launchers, and 18 ground-based radars, enough for eight firing batteries, plus a few spares.

In 1995, the Ballistic Missile Defense Organization may exercise an option to buy 40 missiles, to be available for early deployment in 1996 or 1997.

The original Patriot was designed to protect U.S. forces from air strikes. The version currently deployed, the PAC–2, was used in Operation Desert Storm. The PAC–3 interceptors will augment rather than replace the PAC–2 interceptors. Patriot batteries would have both PAC–2 and PAC–3 missiles.

Last February, the Army selected a hit-to-kill interceptor called ERINT, or Extended Range Interceptor, as the new PAC–3 interceptor. Cost estimates for PAC–3 are $3.2 billion. That is $776 million for development, $1.98 billion for production, and $371 million for operations. BMDO plans to buy 1,500 PAC–3 interceptors. And the first unit is expected to be equipped with PAC–3's in 1998.

The Navy is also developing lower and upper tier systems; however, only the lower tier is currently an approved acquisition program. If produced, both systems would be installed on the 51 ships which will have the AEGIS Weapon System.

The Standard Missile Block IVA would be similar to the Army's PAC–3 in terms of coverage, and would be the sea-based lower tier. The cost estimate is $4 billion. BMDO is planning to buy 40 interceptors, which could be used for early equipping of two ships in 1997 or 1998.

The Navy's upper tier system would have a capability similar to THAAD's, and the cost estimate is again $4 billion. DOD will decide in 1998 whether to begin the demonstration validation phase of that program.

BMDO has also begun concept exploration activities for an airborne boost phase system, which would provide an interceptor for fighter aircraft to target theater missiles while still over enemy territory. BMDO is developing plans for this program for submission to DOD for approval.

Now, although the ABM Treaty prohibits certain systems that have the capability to counter strategic ballistic missiles, as you know it does not define a theater or a strategic missile.

One of the measures used for determining whether missile defense systems comply with the ABM Treaty is the velocity of the incoming targets. If a system capable of defending against an incoming warhead with a velocity greater than a certain speed, it may not be compliant with the ABM Treaty.

In the 1994 Defense Authorization Act, Congress urged the President to pursue discussions on amending the ABM Treaty to permit clarification of the distinction between theater and strategic missiles.

The executive branch is, as you know, currently discussing in the Standing Consultative Commission a proposal that, if accepted, would provide a demarcation between strategic and theater missiles, that it expects would allow systems such as THAAD to be developed in compliance with the Treaty.

Of interest is the extent to which the THAAD system, as currently designed, might have capabilities against targets with velocities above those specified by the systems operational requirements document.

Any answer to that question would be highly dependent on the assumptions used in modeling the capabilities of the system. As you receive information on this question, you may want to ensure that it is accompanied by a clear statement of the assumptions used.

Characteristics which would have significant impact on the answers derived from modeling would include the operational concept involved, the assumed operational characteristics of the target vehicle, including its velocity and its ability to alter its ballistic path, the shape and location of the protected area, relative to both the targets and the interceptor's launch sites, and the cuing available to the system from external sensors.

Mr. Chairman, that concludes the prepared statement. I would be happy to respond to any questions you might have.

[The prepared statement of Mr. Hathaway follows:]

PREPARED STATEMENT OF BRAD HATHAWAY

Mr. Chairman and Members of the Committee: I am pleased to be here today to discuss the Theater High Altitude Area Defense (THAAD) system and other theater missile defense systems. We provided you with general information on THAAD in our recent report./1/ To set the stage for your considerations today, I will focus on the status and cost of the theater missile defense concepts and on issues relevant to compliance with the 1972 Anti-Ballistic Missile (ABM) Treaty.

RESULTS IN BRIEF

THAAD is a mobile, land-based system being developed by the Department of Defense's (DOD) Ballistic Missile Defense Organization (BMDO). It is intended to counter theater ballistic missiles at high altitudes and long ranges using hit-to-kill technology. Such intercepts are deemed desirable to reduce the probability that debris and chemical or biological agents from a ballistic missile warhead will reach the ground in damaging amounts. These intercepts are to provide protection to wide areas such as small countries and population centers and to military forces dispersed in a theater of operations. The THAAD system will consist of missiles, mobile launchers, ground-based radars, a tactical operations center, and support equipment.

The executive branch is currently involved in discussions in the U.S.-Soviet Standing Consultative Commission on a proposal regarding the ABM Treaty that would allow systems such as THAAD to be developed and deployed. The treaty prohibits mobile, land-based systems that can counter strategic ballistic missiles, but it does not define the characteristics of either a strategic or a theater missile. However, some theater missiles now approach the capabilities of the older, shorter range strategic missiles in terms of maximum range. As a result, the concern is that THAAD, if given the capability to counter the newer more capable theater threats, would have some capability against strategic ballistic missiles. This would have serious implications for THAAD and the ABM Treaty.

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[1] Ballistic Missile Defense: Information on Theater High Altitude Area Defense (THAAD) System, (GAO/NSIAD-94-107BR, January 27, 1994).

THEATER MISSILE DEFENSE IN THE POST-COLD WAR ERA

With the end of the Cold War, the U.S. ballistic missile defense strategy shifted from defending the nation from a massive attack by the Soviet Union, to protecting U.S. forces and friends from theater ballistic missiles while fighting in a major regional conflict overseas. The need for such protection entered public consciousness during the Persian Gulf conflict.

With this shift in strategy, funding appropriated by Congress to BMDO for national missile defense decreased while funding for theater missile defense increased. In fiscal year 1993 Congress appropriated about $1.1 billion for theater missile defense and about $2.6 billion for national missile defense. In fiscal year 1994, however, Congress appropriated about $1.6 billion for theater missile defense and only about $1.1 billion for national missile defense.

A threat of particular concern in this era is the proliferation of theater ballistic missiles armed with nuclear, biological, or chemical warheads. Ballistic missile deployments are expected to increase world-wide, despite stepped-up efforts to inhibit their proliferation, and several countries other than the acknowledged nuclear states are developing both nuclear weapons and ballistic missiles.

A BMDO-requested 1992 study indicated that more than 30 types of guided ballistic missiles with ranges of 30 kilometers or greater were either operational or under development in 19 developing nations. Thirteen countries had produced, or were in the process of producing, missiles with ranges greater than 300 kilometers. In addition, the number of countries possessing longer range (greater than 1,000 kilometers) missiles was expected to increase significantly over the next decade.

To address this threat, DOD considered a range of theater missile defense options. The DOD's Bottom-Up Review resulted in a decision to pursue a theater missile defense program that includes:

—the Army's THAAD system,

—the Army's upgraded Patriot system called PAC–3 (Patriot Advanced Capability - Three),

—the Navy's sea based lower tier system,

—the Navy's sea based upper tier system, and

—an airborne boost phase intercept system.

THAAD, PAC–3, and the Navy's lower tier are funded as major acquisitions in DOD's Future Years Defense Program covering fiscal years 1995 through 1999. The Navy's upper tier system and the airborne boost phase intercept system are being pursued as concept exploration programs, one of which may enter the demonstration1validation phase of the acquisition process in fiscal year 1998. I will now provide some additional details about each of the Army, Navy, and Air Force systems.

ARMY'S TWO-TIER THEATER MISSILE DEFENSE OPERATING CONCEPT

According to program documents, an effective theater missile defense system requires a two-tier architecture, with one system providing the upper tier of protection and the other system providing the lower tier. Neither system, by itself, can fulfill the total theater missile defense requirement, which includes defense of dispersed assets and population centers.

The THAAD system would be the upper tier and provides a wide area of defense, to include coverage of dispersed assets and population centers. Intercepts will occur either outside the atmosphere or high in the atmosphere. The PAC–3 system would be the lower tier, with intercepts well inside the atmosphere, providing defense of critical assets.

This two-tier architecture is designed to intercept threat missiles as far away from U.S. forces or allies as possible, maximize the number of intercept opportunities, and minimize the number of ballistic missiles that "leak" through the defense. However, the two-tier defense is possible only when the THAAD and PAC–3 systems' capabilities overlap. Single-tier coverage results when defending against missiles with ranges either less than the THAAD system's minimum coverage ,capability or greater than the PAC–3 system's maximum coverage capability. Figure 1 illustrates how the two systems would work together.

Figure 1: Operational Concept of Two-Tier Theater Missile Defense

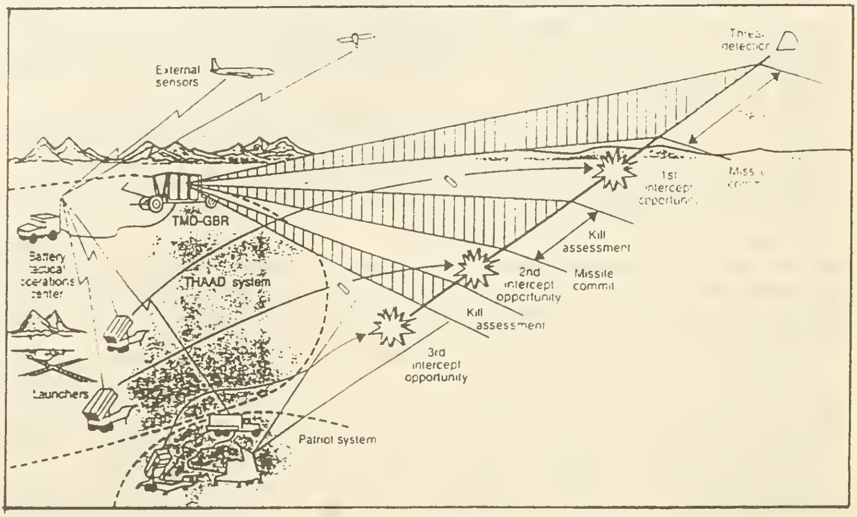


Figure 1 shows how, in a potential sequence of operations, an external early warning sensor, if available, would detect the target and cue the THAAD system for an interceptor launch before the ground-based radar could acquire the target. With or without the external sensor, the ground-based radar would eventually acquire and track the target.

After receiving target identification and guidance information from the radar, the THAAD interceptor would be launched toward the target, and a kill assessment would be conducted by the radar and tactical operations center. Then, if necessary, a second THAAD interceptor would be launched. If the subsequent kill assessment shows that the target still was not destroyed, the radar would cue the PAC–3 system to engage the targets that evaded the THAAD system.

THAAD SYSTEM

In 1990, BMDO initiated the THAAD system requirement as a hit-to-kill technology demonstration program. In September 1992, a 48-month demonstration/validation contract was awarded to Lockheed.

The life-cycle cost estimate for the THAAD system is $14.9 billion in then-year dollars. This amount includes $4.5 billion for development between 1991 and 2001, $5.7 billion for production between 1998 and 2006, and $4.7 billion for operation and support between 1993 and 2016. These figures update the cost that we provided to you last January. With these funds, BMDO plans to buy 1,422 THAAD interceptors, 99 launchers, and 18 ground based radars. Since each THAAD battery would require 150 interceptors and 9 launchers, these quantities would support 8 firing batteries, plus spares.

The first THAAD flight test is scheduled for the last quarter of this year. In 1995, BMDO may exercise an option to buy 40 User Operational Evaluation System missiles that would be available for early deployment in 1996 or 1997 if needed in an emergency. The THAAD system is scheduled to enter the engineering and manufacturing development phase in 1996, and low-rate initial production is planned to begin in 1999. The date that the first unit in the field is to be equipped is expected to be 2001, with full-scale production to begin in 2002.

PAC–3 SYSTEM

The original Patriot was a surface-to-air guided missile system designed to protect U.S. forces from air strikes. The system was initially deployed in Germany in 1985, and the Army subsequently provided Patriot with the capability to defend against theater ballistic missiles. The version currently deployed, referred to as the PAC–2 system, was used in Operation Desert Storm.

The PAC–3 interceptors, which are under development, will augment the PAC–2 interceptors rather than replace them. When fielded, each Patriot battery would have a combination of PAC–2 and PAC–3 interceptors. In February 1994, the Army selected the Extended Range Interceptor (ERINT) as the new PAC–3 interceptor. This selection must be approved by the Defense Acquisition Board. ERINT is a hit-to-kill interceptor offering advantages in both range and lethality over the PAC–2 interceptor.

The life-cycle cost estimate of PAC–3 using the ERINT is estimated by the Army's Cost and Economic Analysis Center to be $3.2 billion in then-year dollars. This amount includes $776 million for development, $1.98 billion for production, and $371 million for operation and support. l3MDO plans to buy 1,500 PAC–3 interceptors, plus a limited number to be used for test purposes. The first unit is expected to be equipped with PAC–3s by the fourth quarter of fiscal year 1998.

NAVY'S TWO-TIER THEATER MISSILE DEFENSE OPERATING CONCEPT

The Navy is also developing lower and upper tier systems similar to the Army's. However, only the lower tier is currently an approved acquisition program. If produced, both systems could be installed on 51 ships which have the AEGIS Weapon System.

SEA-BASED LOWER TIER AREA DEFENSE SYSTEM

The Standard Missile 2 Block IV is being modified (called Block IVA) to improve its performance against short-range ballistic missiles. Its capability will be similar to the Army's Patriot PAC–3 in terms of defense coverage. The current cost estimate is $4 billion. BMDO is planning to buy 40 User Operational Evaluation System interceptors and two sets of modified software for the AEGIS Weapon System. These could be used to equip two ships in 1997–98.

The first ship equipped with the final system would be operational in 1999. It would be equipped with 20 to 30 Block IVA interceptors. For comparison, a Patriot PAC–3 battery would have 32 interceptors.

SEA-BASED UPPER TIER THEATER DEFENSE SYSTEM

The Navy's upper tier system would have a capability similar to the Army's THAAD. BMDO is evaluating several interceptors for the upper tier system. The current cost estimate is $4 billion. DOD will decide in 1998 whether the program will begin the demonstration1validation phase of development.

AIRBORNE BOOST PHASE INTERCEPT CONCEPT

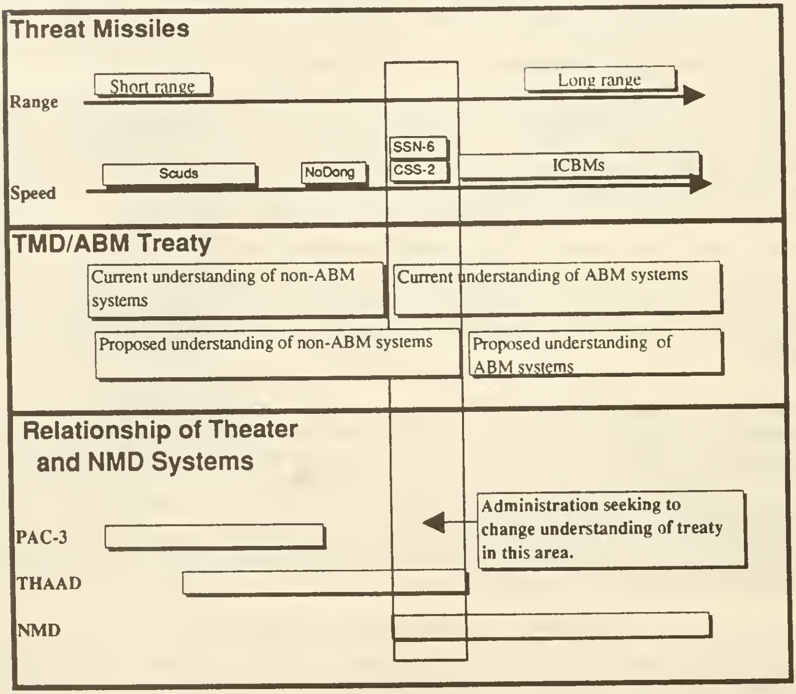
DOD recently decided to begin concept exploration activities for an airborne boost phase interceptor system. Such a system would consist of an interceptor on Air Force and Navy fighters, such as the F–15 and the F–14, that could intercept theater missiles during their initial boost phase while still over enemy territory. BMDO is currently developing the plans for this program, which will be submitted shortly to DOD for approval.

I will now discuss some issues these systems raise concerning compliance with the ABM Treaty.

ISSUES REGARDING ABM TREATY COMPLIANCE

Although the ABM Treaty prohibits mobile, land-based systems that have the capability to counter strategic ballistic missiles, it provides no criteria for determining what constitutes a theater or strategic missile. Consequently, the executive branch is currently discussing in the U.S.-Soviet Standing Consultative Commission a proposal that, if accepted, would provide a demarcation between strategic and theater systems that would allow systems such as THAAD to be developed in compliance with the treaty. Figure 2 illustrates the nature of the problem that the executive branch is attempting to resolve.

Figure 2: Notional Relationship of THAAD, PAC–3, and National Missile Defense Systems


Threat Missiles
Range
Short range
Long range
Speed
Scuds
NoDong
SSN-6
CSS-2
ICBMs
TMD/ABM Treaty
Current understanding of non-ABM systems
Current understanding of ABM systems
Proposed understanding of non-ABM systems
Proposed understanding of ABM systems
Relationship of Theater and NMD Systems
PAC-3
THAAD
NMD
Administration seeking to change understanding of treaty in this area.

Legend: TMD = theater missile defense; NMD = national missile defense.

One of the measures used for determining whether missile defense systems comply with the ABM Treaty is the velocity of incoming targets. In other words, if a missile defense system is capable of defending against an incoming warhead with a velocity greater than a certain speed, the defense system may be determined to be non-compliant with the ABM Treaty. The velocity of a ballistic missile increases as the range of the missile increases. Since the United States uses velocity as a measure of treaty compliance, this measure can also be related to the maximum range of the missiles that a system is trying to counter.

Some theater ballistic missiles now approach the capability of strategic missiles. That is, the long-range theater missiles, such as the CSS–2, have ranges (and resulting velocities) that are similar to some of the older, shorter range strategic missiles such as the SSN–6. These older, shorter-range strategic missiles are obsolete and are to be out of the Russian inventory by 1996.

In the fiscal year 1994 Defense Authorization Act, Congress urged the President to immediately pursue discussions on amending the ABM Treaty to permit clarification of the distinctions between theater and strategic missiles. The executive branch is currently seeking a demarcation that would allow systems such as THAAD to be developed in compliance with the ABM Treaty.

RESIDUAL CAPABILITY OF THAAD

Discussion with your staff raised questions about the extent to which the THAAD system, as currently designed, might have capabilities against targets with velocities above those specified in the system's Operational Requirements Document. We have pursued this question with representatives of the Program Office and the Ballistic Missile Defense Organization. It became clear during these conversations that any answer to the question would be highly dependent on the assumptions used in modeling the capabilities of the system.

As you receive information from the executive branch on this question, you may want to assure that it is accompanied by a clear statement of the assumptions used. For example, the following characteristics would have significant impact on the answers derived from modeling:

—the operational concept involved,

—the assumed operational characteristics of the target vehicle, including its velocity and its ability to alter it's ballistic path,

—the shape and location of the protected area relative to both the target's and interceptor's launch sites, and

—the cueing available to the system from external sensors.

Mr. Chairman, this concludes my testimony. I will be happy to answer any questions you or members of the Committee may have.

The CHAIRMAN. Thank you very much, Mr. Hathaway.

We will turn now to Mr. Hildreth.

STATEMENT OF STEVEN A. HILDRETH, SPECIALIST IN NATIONAL DEFENSE, FOREIGN AFFAIRS AND NATIONAL DEFENSE DIVISION, CONGRESSIONAL RESEARCH SERVICE

Mr. HILDRETH. Thank you.

Mr. Chairman, I am pleased to be invited here this morning to share with you some observations on the administration's proposed ABM Treaty demarcation. My remarks are based on a recently completed CRS Report, which I would like to include here.

The CHAIRMAN. Without objection.

[The information referred to follows:]

CRS REPORT FOR CONGRESS

THE ABM TREATY AND THEATER MISSILE DEFENSE: PROPOSED CHANGES AND POTENTIAL IMPLICATIONS

SUMMARY

The Clinton administration recently decided to establish a formal understanding with Russia and other states of the former Soviet Union on the demarcation between theater missile defenses (TMD) and strategic ballistic missile defenses limited by the 1972 ABM (Anti-ballistic Missile) Treaty. Although the proposed changes to the Treaty apparently have been received warmly by Russia and other former Soviet states, some supporters of the ABM Treaty in the United States have voiced strong concerns and opposition.

The proposed changes come at a time of increasing concern over the global proliferation of ballistic missiles and when advanced U.S. TMD programs approach their testing phase. Continued development of these programs depends on the outcome of current negotiations in Geneva.

The administration seeks to ensure that TMD systems can be deployed against 3,000 kilometer range missile threats. Currently, however, only China and Saudi Arabia possess these long-range theater systems in the developing world. Almost all of the tactical and theater-range ballistic missiles today travel less than about 900 kilometers. The future, however, especially concerning North Korean missile developments, is unclear.

Because Congress has strongly supported the ABM Treaty as well as development of TMD programs, the current proposed ABM Treaty demarcation could focus congressional attention on the rationale and need for advanced TMD programs. Some in Congress have also begun to assert the need for a formal Senate role in any potential ABM treaty change. Although the administration indicates it will consult closely with Congress on the form of any final agreement, it is not sure that Congress will be asked to play a formal role.

Advanced TMD systems tested at the proposed ABM Treaty demarcation will have some inherent capabilities beyond the demarcation. This is a potential problem with the Treaty unless it is somehow resolved. Among the Treaty partners, this capability will probably have little real meaning. Nonetheless, the actual and potential capabilities of advanced TMD systems will introduce a new variable into the security calculations of other nuclear powers such as Britain, France, and China, as well as other likely nuclear countries—Israel, India, Pakistan, and North Korea. Some

or all of these countries could decide that they will not or cannot pursue a variety of military and technological options available to them to counter the effects of advanced TMD systems. On the other hand, some or all of these countries might further proliferate their nuclear systems, continue nuclear testing programs, or embark on new regional arms races. The likely response of any of these countries cannot now be predicted.

As a result, a number of U.S. arms control objectives could be jeopardized. These include implementation of strategic arms control agreements, completion of a comprehensive nuclear test ban, and extension of the Non-Proliferation Treaty.

BACKGROUND

The 1972 U.S.-Soviet ABM (Anti-Ballistic Missile) Treaty codified a belief that limits on defensive systems capable of intercepting strategic ballistic missiles (SBMs) would help substantially in curbing strategic nuclear arms competition and in decreasing the risk of war involving nuclear weapons (see ABM Treaty Preamble). Although a precise definition of an SBM was not included, the parties generally agreed that for purposes of the ABM Treaty, SBMs were missiles captured by other strategic nuclear arms control agreements. Shorter range tactical and theater ballistic missiles (TBMs), whose ranges vary considerably from 30 to 3,000 kilometers, were not captured by the ABM Treaty or U.S.-Soviet strategic nuclear arms control agreements.

Until recently, the lack of an agreed-upon dividing line between TBMs and SBMs in the ABM Treaty was not a critical issue. Now, however, with the experience of the Iraqi missile attacks in Desert Storm and still growing concern over the global proliferation of TBMs, the development of advanced U.S. theater missile defense (TMD) systems to counter TBMs is viewed increasingly as a national security priority.[1] But, for several years, the absence of a clear dividing line in the Treaty between theater and strategic ballistic missiles has caused some concern in the arms control community, especially as advanced U.S. TMD programs move closer to actual testing and deployment.

In late 1993, after a lengthy review, the Clinton administration decided to establish a formal understanding on the distinction between TMD systems not limited by the ABM Treaty and strategic ballistic missile defenses (BMD) that are limited. The proposed changes were delivered to Russia and other former Soviet states at a meeting of the Standing Consultative Commission (SCC), which was established by the ABM Treaty and is charged with promoting the objectives and the implementation of the Treaty (Article XIII). Negotiations are well underway. There is widespread expectation that agreement soon will be forthcoming.

The need to establish a formal understanding with Russia on permitted TMD testing and deployment is acute because of the status of the most advanced TMD program called THAAD (Theater High-Altitude Area Defense). The THAAD program enters its testing phase later this year. The challenge in establishing an understanding involves balancing Russian concerns over the potential ABM capabilities of advanced TMD systems, the widespread U.S. political consensus to develop and deploy effective TMD systems, strong congressional and administration support for the ABM Treaty, and Senate interest in playing a formal role in the outcome. Most analysts and decisionmakers believe an ABM Treaty solution is necessary and possible. Others believe the particular solution being considered is too permissive, incomplete, or threatens the Treaty. A few believe that the best solution simply is to abandon the Treaty altogether and move forward aggressively with widespread BMD deployments.

The proposed changes raise a number of questions. These questions involve congressional activism in pursuing advanced TMD programs, prerogatives in arms control decisionmaking, and long-standing support for preserving the ABM Treaty. The proposed changes may affect British, French, and PRC nuclear forces, U.S. and regional relationships around the globe, and future U.S. arms control objectives. This report addresses these issues.

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[1] TMD systems are generally understood to include interceptor missiles capable of destroying attacking TBMs. See U.S. Library of Congress. Congressional Research Service. Theater Missile Defense Policy, Missions, and Programs, by Steven A. Hildreth. CRS Report No. 93–585F, June 10, 1993; and U.S. Library of Congress. Congressional Research Service. Theater Missile Defense: Issues for the 103rd Congress, by Steven A. Hildreth. CRS Issue Brief 93064, updated regularly.

THE AMB TREATY, SDI, AND TMD

The ABM Treaty between the United States and the Soviet Union, signed and ratified in 1972, limits the development, testing, and deployment of defensive systems capable of intercepting strategic ballistic missiles. Its central purpose is to prohibit deployment of a nationwide ABM defense. With a 1974 Protocol, the Treaty permits each party to deploy one ABM system to protect either its national capital or an ICBM (intercontinental ballistic missile) field. This ABM system is limited to no more than 100 ground-based interceptor missiles and 100 launchers. There are also restrictions on the number and characteristics of associated radars. The Soviet Union chose to deploy its system around Moscow, while the United States built its single site to defend an ICBM field near the Canadian border northwest of Grand Forks, North Dakota. The U.S. site became operational in 1974, but was rendered inactive in mid-1975 primarily for budgetary reasons. Neither side may deploy ABM systems for a defense of its country nor provide a base for such a defense. Neither may deploy ABM systems for defense of an individual region, except for the single permitted ABM site.

Weapon systems that are not capable of intercepting strategic ballistic missiles are not limited in any way by the ABM Treaty.[2] Although this seems straightforward, it is not. The distinctions between strategic ballistic missiles (SBMs) and theater ballistic missiles (TBMs) have been blurred since the Treaty's inception for two key reasons.

- The ABM Treaty does not define a strategic ballistic missile. The 1972 SALT I (Strategic Arms Limitation Talks) and 1979 SALT II agreements defined a strategic ballistic missile as an ICBM with a range greater than 5,500 kilometers. Also included in SALT, however, were ballistic missiles deployed on SALT-accountable Soviet nuclear-powered submarines. Some of these submarines deployed the SS–N–5 SLBM (submarine-launched ballistic missile), which only had a range of about 1,400 kilometers. Further complicating the definition of a strategic ballistic missile was the categorization of 1960s-era Soviet medium- and intermediate-range ballistic missiles (MRBMs and IRBMs, such as the SS–4 and SS–5, with ranges of about 2,000 and 4,100 kilometers, respectively). Although not SALT-accountable, these missiles were considered strategic by the SCC for purposes of the ABM Treaty in the 1970s because of the manner in which they were tested in conjunction with Soviet ABM radars.[3]
- Since the ABM Treaty was signed, some TBMs have had greater ranges than many U.S. and Soviet MRBMs/IRBMs and short-range SBMs. The Chinese deployed the 3,000 kilometer nuclear-armed CSS–2 missile in 1971. This missile remains operational today in China. Some non-nuclear CSS–2 missiles were exported to Saudi Arabia in the late 1980s. Many do not consider the Saudi missiles operational, however. The CSS–2 is not constrained by any treaty. Because it is considered the longest range TBM, it has come to represent the dividing line between TBMs and SBMs.

Today, however, the distinctions between theater and strategic ballistic missiles are becoming clearer. This point can be made by plotting the peak velocity of a ballistic missile, which increases as the range of the missile increases. Figure 1 shows the range of peak velocities of TBMs and SBMs. Since the ABM Treaty was signed, the range of peak velocities for tactical and theater ballistic missiles has remained constant. U.S. and Soviet MRBMs and IRBMs were eliminated by the 1988 INF (Intermediate-range Nuclear Forces) Treaty. And with Russian START reductions and retirements looming, their shortest range SLBMs, which had peak velocities less than the CSS–2's and U.S.-Soviet MRBMs and IRBMs, are being eliminated. It is important to note that for the first time there soon will be a clear gap between deployed TBMs and SBMs.

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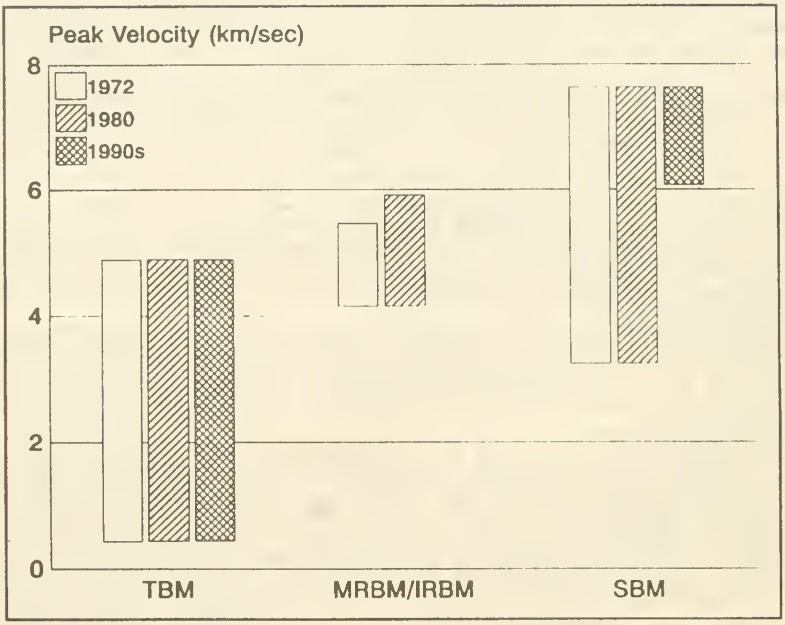
[2] During Senate debate over the ABM Treaty, the Director of Pentagon Defense, Research, and Engineering, John Foster, testified as to the appropriate upper threshold for non-ABM testing and deployment. This threshold established a maximum peak velocity of 2 kilometers/second and a maximum intercept altitude of 40 kilometers. The threshold became known as the "Foster Box," and is internal Pentagon guidance for determining whether U.S. military systems under development require Pentagon compliance review. Although the Soviet Union was aware of this guidance, the Foster Box was never a subject for formal discussion or review at meetings of the SCC.

[3] Telephone conversation with Sidney Graybeal, former Commissioner of the SCC. January 1994.

Figure 1.—Range of Peak Velocities of TBMs, MRBMs/IRBMs, and SBMs (1972–1990s)



Beginning in the early 1980s, a congressional consensus emerged for fielding effective missile defenses as soon as possible against tactical ballistic missiles.[4] The result was a two-level approach that supported a near- and long-term solution. The near-term solution was to upgrade the Army's Patriot air- defense system to give it limited tactical missile defense capabilities. This became known as the Patriot PAC–2 system (Patriot Antitactical Missile Capability). The longer term solution promoted development of advanced TMD systems in the Strategic Defense Initiative (SDI). During this time, when the SDI budget grew to about $3.5 billion per year, an average of $200–$300 million was allocated for TMD. By the late 1980s, the Pentagon TMD budget rose above $500 million per year. In Congress, criticism of the Pentagon's lack of attention toward TMD began to wane.

After the 1991 war against Iraq the long-term Pentagon budget for TMD rose dramatically. With these increases, congressional scrutiny focussed on the multiplicity of TMD programs among the military services and the rationale to develop large-area TMD. When the Clinton administration entered office, it shifted the Nation's missile defense priorities from national missile defense (NMD) to TMD. For comparison, the NMD program for FY 1995–1999 is planned at about $3 billion, while TMD programs are to receive $18 billion. The current FY 1995 budget request for TMD is about $2.1 billion; the total Ballistic Missile Defense Organization (BMDO, formerly the SDI Organization) budget is about $3.2 billion.

As the TMD effort evolved, some analysts and policymakers began to ask whether advanced TMD systems would be compliant with the ABM Treaty. Many of the most important aspects of this debate are classified. Therefore, fully informed debate is limited to a relatively small number of officials in the Executive Branch, some Members of Congress, and defense contractors. Recently, the administration submitted a required report to Congress on the arms control compliance of the most mature, advanced TMD program, THAAD.[5] The report's discussion of whether THAAD specifically is treaty-compliant is classified. Recently, however, John Holum, Director of ACDA (Arms Control and Disarmament Agency) told Congress that the ABM Treaty would have to be changed in order to develop THAAD.[6]

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[4] See, U.S. Library of Congress. The Patriot Air Defense System and the Search for an Antitactical Ballistic Missile Defense. CRS Report 91–456F, by Steven A. Hildreth, June 18, 1991, and U.S. Library of Congress. Theater Ballistic Missile Defense Policy, Missions, and Programs: Current Status. CRS Report 93–585F, by Steven A. Hildreth, June 10, 1993.

WHY SEEK CHANGES TO THE ABM TREATY NOW?

Why do many people believe it is now necessary to change the ABM Treaty? Several key reasons discussed below include the need for treaty compliance certification of advanced U.S. TMD programs, concern over global proliferation of TBMs, and congressional and Russian concern over resolving the issue of permitted TMD testing and deployment.

An important reason is that a decision has to be made regarding the arms control compliance of a major TMD program. The THAAD program is scheduled to begin missile and system testing in 1994. This fall, THAAD missiles will be launched in the first of many tests. In early 1995, THAAD missiles are scheduled to begin intercepting various targets from fixed and mobile platforms. For several years, there has been uncertainty over THAAD's compliance with the ABM Treaty. Congress will be asked this year to fund these tests in the FY 1995 defense bill.

Related to this is widespread interest in developing effective TMD systems to counter the proliferation of TBM threats around the world. Many analysts and supporters of the ABM Treaty conclude that the Treaty should not become an obstacle to deploying such defenses. Some have advocated that the Treaty must be clarified if it is to remain a "viable arms control agreement consistent with U.S. and Russian national security requirements.[7]

Clarification of permitted TMD systems and ABM systems limited for strategic ballistic missiles has also been a Soviet concern. In fact, according to the Acting Commissioner of the SCC, the Soviets proposed establishing a 3 kilometer/second and 90 kilometer maximum altitude threshold for TMD systems.[8] More recently, the Russians apparently insisted on resolving this issue quickly and called upon the United States to initiate a dialogue given that the THAAD was soon to begin testing.[9]

Congress also advocated clarification of the Treaty on this matter. A few weeks before the White House made its decision to modify the ABM Treaty, Congress passed the FY 1994 Defense Authorization Act. The Act includes the following language:[10]

- "Congress urges the President to pursue immediate discussions with Russia and other successor states of the former Soviet Union, as appropriate, on the feasibility of; and mutual interest in, amendments to the ABM Treaty to permit—clarification of the distinctions for the purposes of the ABM Treaty between theater missile defenses and anti-ballistic missile defenses, including interceptors, radars, and other sensors." [P.L. 103–160, Section 232(c)(1)]
- "The ABM Treaty was not intended to, and does not, apply to or limit research, development, testing, or deployment of missile defense systems, system upgrades, or system components that are *designed to counter modern theater ballistic missiles,*[11] regardless of the capabilities of such missiles, unless those systems, system upgrades, or system components are tested against or have *demonstrated capabilities to counter modern strategic ballistic missiles* (italics added)." [P.L. 103–160, Section 234(a)(7)]

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[5] Office of the Secretary of Defense. Report to the Congress. Theater Missiles Defense Systems ABM Treaty Compliance Report on the Theater High-Altitude Area Defense (THAAD) Interceptor & Theater Missile Defense Ground-Based Radar (TMD–GBR). January 12, 1994. (S)

[6] Sen. Paul Simon asked: "if we do not modify the [ABM] treaty, we are not able to develop this weapon system [THAAD] by the treaty. Is that correct?" John Holum replied: "That's correct." Hearings on ABM Treaty and TMD. Senate Foreign Relations Committee. March 10, 1994.

[7] For example, see Graybeal, Sidney N. and McFate, Patricia A. The ABM Treaty and Ballistic Missile Defense: Can the Circle be Squared? A PSIS (Program on Science and International Security) Occasional Paper, Number 93–26S. 1993. Published by the American Association for the Advancement of Science. Washington, DC.

[8] Dr. Stanley Riveles. The ABM Treaty and the U.S. TMD Program. Meeting of the Arms Policies Working Group. Center for Strategic and International Studies. January 14, 1993.

[9] Interview with congressional staff. December 1993.

[10] National Defense Authorization Act for Fiscal Year 1994. Public Law 103–160. 107 STAT. 1547. Nov. 30, 1993.

[11] The Act adds that some missiles, "such as the Chinese-made CSS–2 have capabilities equal to or greater than the capabilities of missiles which were determined to be strategic missiles more than 20 years ago under the SALT I Interim Agreement of 1972." [P.L. 103–160, Section 234(a)(6)]

- "It is a national security priority of the United States to develop and deploy highly effective theater missile defense systems capable of countering the existing and expanding threats posed by modern theater ballistic missiles as soon as is technically possible." [P.L. 103–160, Section 234(a)(8)]
- "It is essential that the Secretary of Defense immediately undertake and complete a review for compliance with the ABM Treaty of proposed theater missile defense systems, system upgrades, and system components so as to not delay the development and deployment of such highly effective theater missile defense systems." [sec. 234(a)(9)]

This legislation served to provide political support within the Executive Branch to those who advocated Treaty changes to permit advanced TMD testing and deployment.[12]

DETAILS OF THE PROPOSED TREATY CHANGES

The administration's proposed changes to the ABM Treaty were delivered to Russia and other former Soviet states at a meeting of the SCC in Geneva in December 1993. There are several elements in the U.S. proposal. Note that in many respects they mirror the concerns and objectives outlined by Congress in the FY 1994 Defense Authorization Act.

- The United States withdrew previous proposals offered by the Bush administration to amend the ABM Treaty. One proposal sought to allow 5–6 ABM sites or hundreds of interceptors to be deployed. Another sought to allow space-based sensors to perform direct ABM battle management functions or otherwise substitute for ABM radars.
- The United States will negotiate an Agreed Statement to the ABM Treaty that will permit testing and deployment of advanced TMD systems capable of intercepting a medium-range Chinese-built CSS–2 missile. For purposes of treaty compliance, any missile defense system not tested against a ballistic missile target with a maximum speed greater than 5 kilometers per second will be considered a TMD system and will not be constrained by the ABM Treaty. In the current ABM Treaty negotiations, the proposed 5 kilometer per second threshold is referred to as the demarcation between TMD and strategic ballistic missile defenses.
- The United States will seek to change Article 2 of the ABM Treaty, which reads that neither party will "give missiles, launchers, or radars, other than ABM interceptor missiles, ABM launchers, or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode," to read instead *"demonstrated capabilities* to counter strategic ballistic missiles * * * (italics added)."
- The United States will negotiate an Agreed Statement to expand the Treaty's members, accepting as treaty parties any of the former Soviet states that claim succession rights who want to be party to the Treaty. The United States will pursue multilateralizing the Treaty and demarcation in parallel, and will not agree to the former until agreement on the latter is secured.

Figure 2 illustrates the administration's proposal. It shows the range of peak velocities of what the Congress and the administration refer to as modern TBMs and SBMs (i.e, those missiles remaining in a START force structure). The figure shows that a clear gap exists between theater and strategic ballistic missiles and the proposed demarcation. Supporters of the administration's proposed ABM Treaty changes point out that this gap is sufficiently wide to ensure that the proposed demarcation will not impinge on the Treaty's ability to limit strategic BMD systems.

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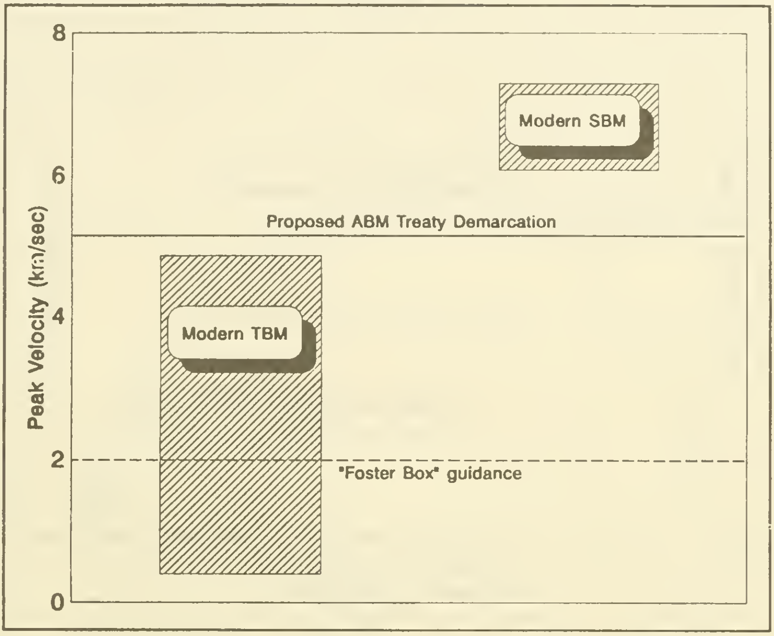
[12] Interviews. November-December 1993.

Figure 2.—Guidance of ABM Treaty Modern Theater and Strategic Ballistic Missiles



The following graph illustrates the administration's ABM Treaty proposal in a different way. Figure 3 plots a missile's peak velocity as a function of its range.[13] Note that the peak velocity increases as the range of the missile increases. The graph shows that the 5 kilometer per second demarcation corresponds roughly to a 3,200 kilometer range ballistic missile. As a line for comparison, previous Pentagon guidance establishing a 2 kilometer per second threshold for permitted non-ABM testing and deployment, known as the Foster Box, is noted (see footnote 2).

BALLISTIC MISSILE PROLIFERATION

What threats are captured by TMD systems capable of intercepting 5 kilometer per second ballistic missiles? The Executive Branch and many others have long argued that numerous countries possess or are building weapons of mass destruction, as well as ballistic missiles that could deliver these weapons.[14] Figure 4 shows some of the types of TBMs deployed throughout the developing world that could be destroyed if advanced U.S. TMD systems perform as envisioned. For example, the list includes the PRC-built CSS–2, which precipitated much of the recent concern for setting the demarcation at 5 kilometers per second. Other PRC nuclear missiles are dealt with in a later section.

The list also includes the North Korean No Dong 1, which will reportedly enter full-scale production later in 1994, as well as the longer range No Dong 2 under development. Although it is too early to assess the likely ranges of similar North Korean ballistic missiles reported under development, these missiles are likely to fall under the proposed TMD demarcation. There is also the Indian Agni missile under development. A number of other shorter range TBMs such as Scuds, as well as Pakistani and Israeli Jericho missiles, fall well under the proposed demarcation. Many countries hostile or unfriendly to U.S. interests possess these missiles.

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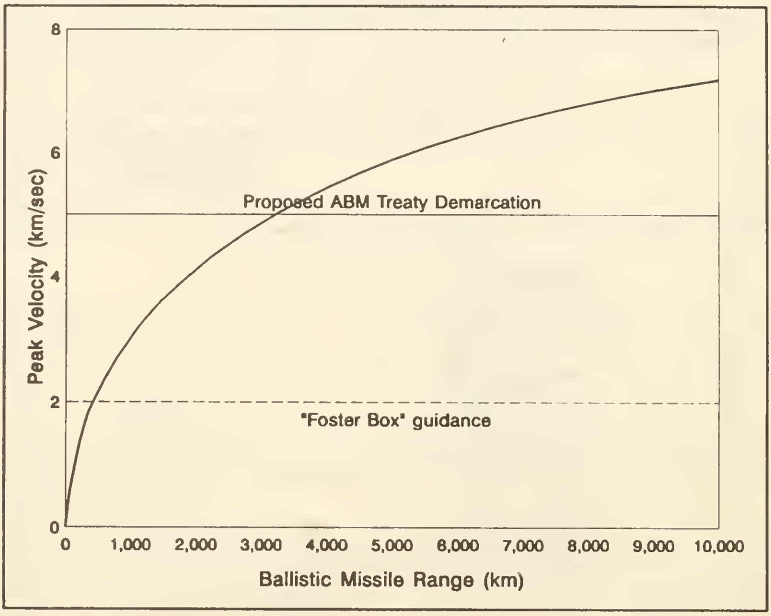
[13] These calculations were graciously provided by Dr. Peter Zimmerman, a physicist and defense specialist at the Center for Strategic and International Studies.

[14] For example, see U.S. Department of Defense. SDI Organization. Ballistic Missile Proliferation: An Emerging Threat. 1992. Washington. DC.

Figure 3.—Ballistic Missile Velocities and Proposed ABM Treaty Changes



It is important to examine a little more closely how many such missiles there are and who has them in the developing world. Although it is not possible to get an accurate accounting of the total number of TBMs throughout the world from public and unclassified sources,[15] currently there appear to be about 1,400 to 2,000 such missiles (excluding NATO, Russia, and Japan). Almost all of these missiles are shorter range, having a range of less than 900 kilometers. About 9%-14% can travel between 900 and 3,000 kilometers. The distribution of these TBMs as a function of their range can be seen in Figure 4.

It is also useful to look more closely at the countries that may possess these longer range TBMs. Figure 5 shows that almost all these missiles can be found in China and Saudi Arabia; most of those remaining may be deployed in Israel, with a very few perhaps in North Korea and India.

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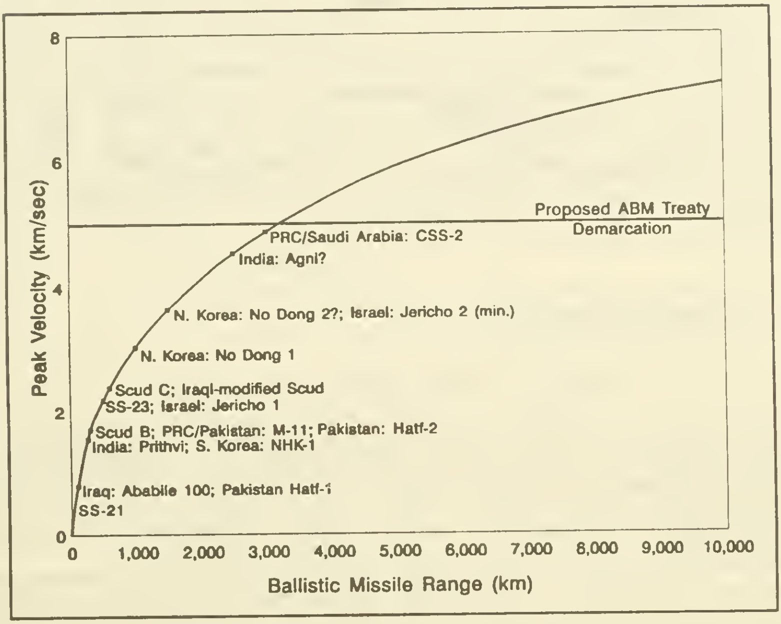
[15] Some unclassified numbers were obtained from the Defense Intelligence Agency, Office of Legislative Liaison, February 1994. Public sources of information included: The Military Balance, 1992–1993. International Institute for Strategic Studies. 1993. London; and The Nonproliferation Review. Monterey Institute of International Studies. Fall 1993 (vol. 1, No. 1). Monterey, CA.

Figure 4.—Third World Ballistic Missiles and Proposed ABM Treaty Changes



There is little doubt that these numbers will change over the next few years and beyond. But their distribution illustrates two important points that probably hold up even with accurate classified numbers. First, almost all of these missiles are shorter range TBMs, which could be engaged by the PAC–3 system under development. Second, almost all of the longer range TBMs are in the hands of countries not hostile to the United States. These points suggest that it would be very useful to have a similar, classified assessment of missile proliferation covering 3–5 years from now so as to provide important data in considering early procurement of advanced TMD systems.[16] It would then be useful to have a similar assessment covering the period ten years from now so as to assist decisionmakers in their long-term planning for advanced TMD development and procurement. Such assessments should not be generalized, but rather should include not only numerical estimates, but projections of countries likely to threaten U.S. interests directly (e.g., threats of direct missile attacks on U.S. overseas bases or forces) and indirectly (e.g., threats of missile attacks on U.S. allies and friends, and exports of TBMs to countries hostile to U.S. interests).

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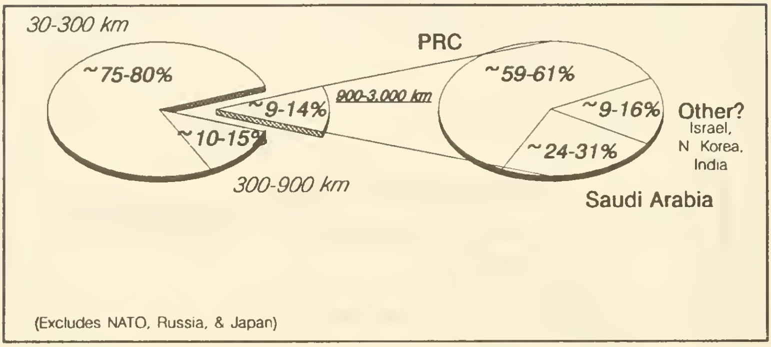
[16] In FY 1996, the Pentagon plans to buy a User Operational Evaluation System (UOES), or THAAD battery consisting of 40 interceptors and associated radars for contingency use.

Figure 5.—Estimated Global Tactical/Theater Ballistic Missiles



REACTIONS TO THE ADMINISTRATION'S PROPOSAL

Although the administration's proposed changes have evoked mostly praise, mixed with some criticism, the issue has not stirred broad public or congressional interest to date. Neither has there been much reaction overseas. Some of the criticism that has been leveled at the proposed changes focuses on the potential capabilities of advanced TMD systems to intercept strategic ballistic missiles. Although some analysts characterize this capability as significant,[17] the administration and others argue that this capability is theoretical and militarily insignificant.[18]

One way to understand this argument better is to consider the experience gained from the Patriot PAC–2 tactical missile defense system. PAC–2 was designed to intercept targets with ranges of about 300 kilometers, or whose peak ballistic velocities approached 1.7 kilometers/ second. During Desert Storm, the PAC–2 system engaged Iraqi-modified Scuds with ranges of about 600 kilometers, or whose peak velocities reached close to 2.7 kilometers/second. Although the range of the target doubled, more importantly it represented about a 40 percent increase in peak ballistic velocity compared to the targets PAC–2 was demonstrated against before Desert Storm. Despite the considerable increase in target speed, the Patriot system was effective, according to the Pentagon, whose final assessment is "that over 40 percent of the engagements in Israel and over 70 percent of the engagements in Saudi Arabia were successful."[19] Critics of Patriot in Desert Storm put its effectiveness against Iraqi Scuds closer to zero.

From discussions with senior missile defense engineers in industry,[20] one can fairly make some comparisons and apply them to prospective advanced TMD systems. Figure 6 illustrates the declining capability of the PAC–2 beyond its design specifications and test performance. Although there is not unanimity on how quickly this capability degrades to zero, what's important is to note that demonstrated missile defense capabilities do not degrade catastrophically immediately beyond an upper-test limit. Instead, those capabilities degrade gracefully. In other words, if, for example, TMD capability against 5 kilometers per second missiles is 95%, then capability does not fall to zero against 5.1 kilometers per second missiles.

The administration and others point out that any ABM capabilities of advanced TMD systems are militarily insignificant. They argue that in a real war, especially with strategic nuclear missiles, an attacker will overwhelm the TMD systems of an adversary (e.g., a hypothetical U.S.-Russian strategic nuclear exchange). This may be true, but in the context of the ABM Treaty, it is largely irrelevant. The ABM Treaty does not include any provision that addressees military capability or significance. Instead, the Treaty states that the parties will not give any interceptors or components "capabilities to counter strategic ballistic missiles or their elements in flight trajectory" (Article VI).

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[17] See Lisbeth Gronlund, George Lewis, Theodore Postol, and David Wright. Highly Capable Theater Missile Defense and the ABM Treaty. Arms Control Today. April 1994, pp. 3–7.

[18] Interviews with Pentagon and National Security Council staff. December 1993.

[19] See, "Statement by Major General Jay M. Garner on Patriot Performance in Desert Storm," in U.S. Congress. House. Committee on Government Operations. Subcommittee on Legislation and National Security. Performance of the Patriot Missile in the Gulf War. Hearings, 102nd Congress, 2nd Session. April 7, 1992. Washington, G.P.O., 1993. p. 228.

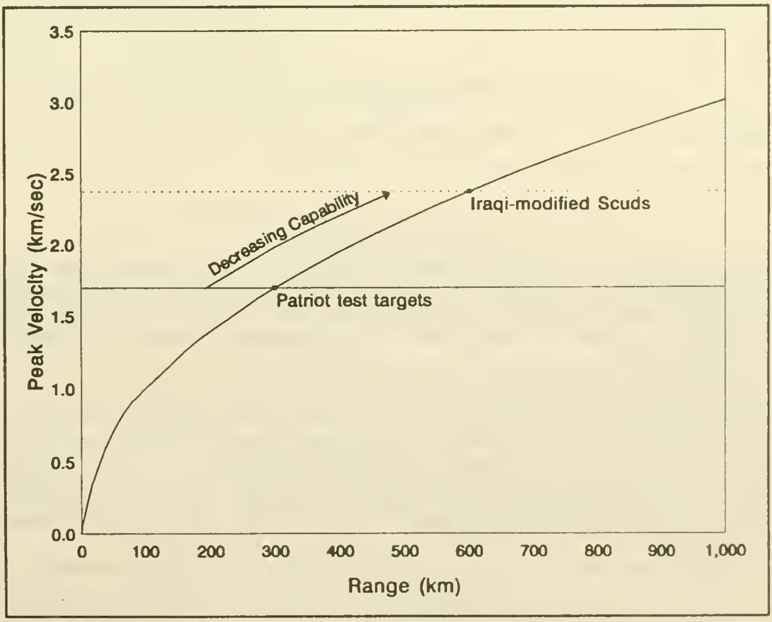
[20] Telephone conversations. December 1993-January 1994.

The problem is that the Treaty limits TMDs if they have any capability, not just a significant or military capability, to counter strategic ballistic missiles. If the administration prevails and changes Article 2 to read "demonstrated capabilities," then part of this particular issue may be resolved. Only TMD systems actually tested through verifiable means at or below the demarcation would not be considered ABM systems. But what happens if a permitted U.S. TMD system is deployed in a future crisis and engages targets faster than 5 kilometers per second? Would all such U.S. TMD systems then be considered ABM systems and made illegal under the terms of the Treaty? What happens, for example, if the United States exports to Japan, or if Russia exports to Libya, an advanced TMD system that is then tested by those countries against a target travelling faster than 5 kilometers per second? What becomes of such systems in the United States or Russia? Do the proposed ABM Treaty changes address these issues?

If advanced TMD systems possess some inherent ABM capability against targets faster than 5 kilometers per second, then one can see in Figure 7 why some have expressed concern over the proposed ABM Treaty changes. This graph shows that if you apply the PAC–2 lesson to the proposed TMD threshold, then there is a capability to destroy some Russian strategic ballistic missiles. This capability may range, for example, from .0001 percent to 20 or 50 percent or more, but the point is that there is some capability against ballistic missiles whose peak velocities exceed the 5 kilometers per second demarcation.

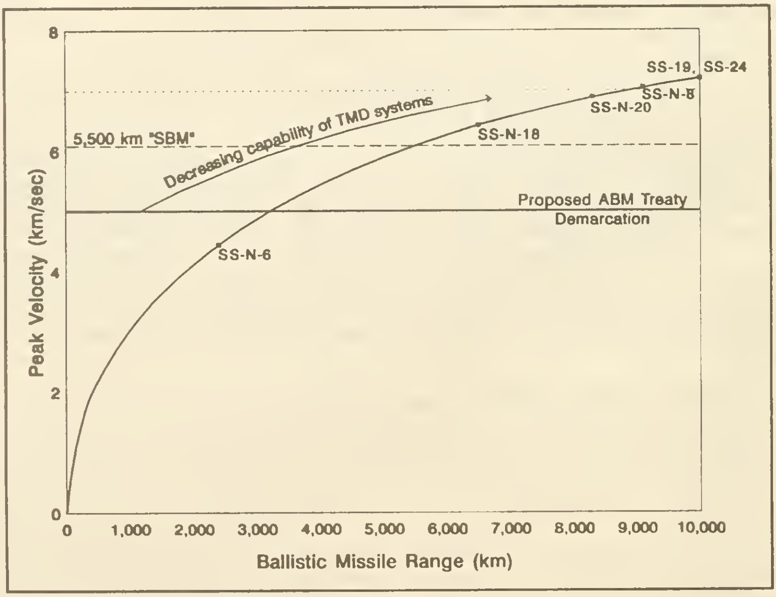
Although the administration largely discounts domestic criticism of its ABM Treaty demarcation, the Russians apparently consider this particular issue relevant. In Geneva, the Russians raised a number of concerns that dealt with the potential ABM capabilities of advanced TMD systems. These concerns apparently include interest in obtaining additional technical constraints (e.g., establishing maximum interceptor speeds and maximum altitude intercepts), as well as other arms control measures (e.g., provisions that ensure a treaty party will not deploy widespread TMD systems in the absence of clear TBM threats), in establishing a formal understanding of the distinctions between permitted TMD systems and restricted ABM systems.

Figure 6.—Patriot PAC–2 Tested and Demonstrated Capabilities



But, one might ask why the Russians would be at all interested in pursuing changes to the Treaty that could degrade the capability of some of their strategic missile systems? Part of the answer is that, unlike the United States, Russia faces immediate and prospective TBM threats from regional neighbors, specifically from China, and elsewhere from its south. Figure 8 shows that much of Russia could be threatened with 3,000 kilometer TBM threats. Such an area might include about 80%-90% of Russian urban and industrial centers and about 50%-70% of Russian military assets. It would appear that Russia's primary interest in the proposed Treaty demarcation would be to pursue its own national security interests. Of course, Russia might conclude that TMD systems are of doubtful utility, too expensive to develop and maintain, and would only fuel an arms race; therefore, such systems should be constrained and deterrence strengthened.

Figure 7.—Russian Strategic Ballistic Missiles and Proposed ABM Treaty Changes



POTENTIAL IMPLICATIONS

The administration's proposed changes to the ABM Treaty suggest a number of potential implications. Some of these might affect long-standing congressional support for TMD and the role of the Congress in arms control decisionmaking. Other implications may affect U.S. international security and arms control interests. These are discussed below.

CONGRESSIONAL INTEREST IN ADVANCED TMD

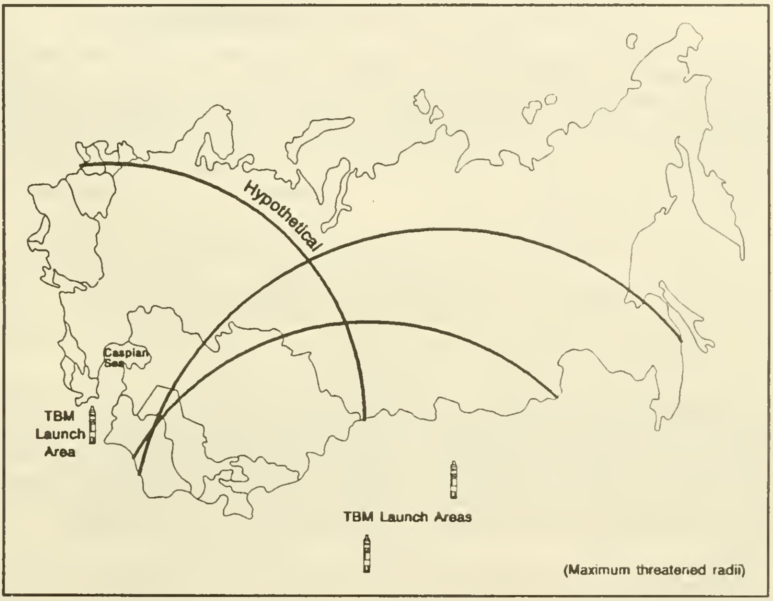
For many years, Congress has been the principal advocate for and supporter of developing effective TMD systems. Congress believes such defenses are militarily necessary to protect U.S. and allied coalition forces overseas against possible tactical ballistic attacks. Congress supported upgrading the Patriot air-defense system to give it a limited TMD capability long before the Patriot PAC–2 systems were needed in Desert Storm. Congress has long supported longer term TMD technology development in the hope that such capabilities could aid in the defense of U.S. projection forces overseas.

But, within the past year or two, as TMD budgets increased dramatically, Congress has begun to scrutinize the profusion of military service TMD programs and the rationale for wider area defenses. Many in Congress believe that wide-area defenses are principally necessary to the security interests of U.S. allies and friends, and not directly necessary to the national security interests of the United States.

Many are beginning to believe that if this is the case, then the United States might want to reconsider its support of such programs, and, instead, turn to U.S. allies and friends for financial and perhaps technological cooperation. Some Members ask, for example: Why should the United States subsidize the TMD security requirements of friends and allies at taxpayer expense, while not funding a national missile defense of the continental United States? Why are U.S. friends and allies not more concerned about missile threats to their own countries and not willing to make their own resource commitment to develop TMD systems?

Although this debate is only beginning, it is likely that as it widens (and if perceptions of the threat do not change and allies do not unequivocally support the U.S. TMD effort), advanced TMD programs might be cut significantly by Congress. Within the next few years, therefore, the advanced U.S. TMD effort could become a basic research and development effort with an indefinite deployment schedule.

Figure 8.—Potential 3,000 km TBM Threats to Russia



CONGRESSIONAL PREROGATIVES IN ARMS CONTROL

Congress views itself as a coequal partner with the Executive Branch in foreign and defense policymaking. Congress therefore places great importance on being kept abreast of Executive Branch goals, plans, and negotiations for arms control. The current proposal to change the ABM Treaty was criticized by some in Congress for the lack of prior, widespread congressional consultation on issues that affect a major treaty with strong congressional support.

There is a growing awareness that the proposed ABM Treaty changes might produce a new arms control regime, one that places limits on TMD systems within the context of the ABM Treaty. Senator Richard Lugar stated that if the proposed changes restrict U.S. defense programs, or could tend to have that effect, they "must be judged to be substantive modifications, and must be submitted to the Senate for its advice and consent."[21] Other Members of the Senate Foreign Relations Committee, including Chairman Claiborne Pell, have taken the same position. Other Members have not yet taken a public position on whether the Senate should play a formal role in establishing a demarcation in the ABM Treaty or creating a new TMD arms control regime within the Treaty.

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[21] Sen. Richard G. Lugar. Opening Statement. Hearing on administration Proposal to Seek Modification of the 1972 ABM Treaty. Senate Foreign Relations Committee. March 10, 1994.

How a negotiated agreement between the United States, Russia, and other former Soviet partners gets formally resolved may turn on U.S. congressional- executive relations. The administration will have to convince many in Congress that the proposed changes will not subvert the central purposes of the ABM Treaty and at the same time will not impinge on U.S. options to develop and deploy advanced TMD systems. Decisionmakers will also have to determine whether a formal legislative review of the Treaty here and abroad by the Treaty partners is the appropriate course of action.

OTHER NUCLEAR POWERS

Figure 9 shows the peak velocities of the ballistic missile forces of the non-U.S.-Russian nuclear countries. It shows that advanced TMD systems could have some capability to intercept almost all the nuclear forces of these other countries. This section looks briefly at some of the ways in which these other nuclear powers might think of, or respond to, the possibility that advanced TMD systems might be deployed by another regional power or adversary.

NUCLEAR MODERNIZATION EFFORTS AND NUCLEAR TESTING

The ABM Treaty proposal introduces a new, unplanned variable into the nuclear security calculations of Britain, France, China, and Israel. The affect on their decisions cannot now be predicted with any certainty. By permitting unrestricted missile defense capabilities against roughly 3,200 kilometer missiles, TMD systems could be deployed so as to jeopardize the effectiveness of virtually all of the ballistic missile nuclear forces of Britain, France, China, and perhaps Israel, India, Pakistan, and North Korea. Reactions to this turn of events could manifest themselves in several ways, if these nations so choose.

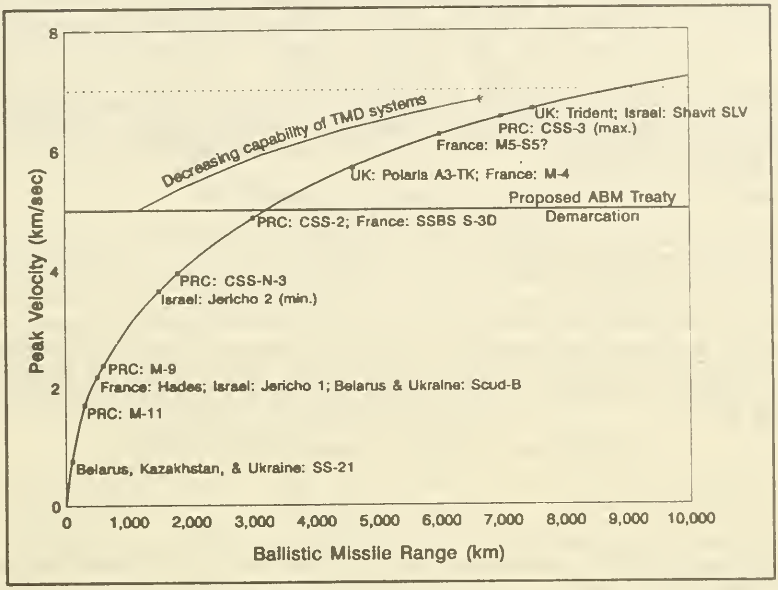
First, some or all of these nations might conclude that they can no longer be assured of being able to threaten or destroy the range of targets they plan for with the same level of confidence, and therefore, require a larger number of nuclear-armed ballistic missiles. They could decide to increase significantly the size of their force. These countries may decide for financial or other reasons that they cannot or will not proliferate numerically, but the effect of the U.S. proposal is to present these countries with a new factor to consider.

Second, if some or all of these nations decide that they can no longer be assured of being able to threaten or destroy the range of targets they plan for at the confidence level they want, they might decide that qualitative nuclear force modernization is necessary. Such improvements might include, for example, deploying multiple warheads on their missiles and penetration aids to get through prospective missile defenses. Again, these nations might decide they cannot afford to undertake such improvements, but that is something that cannot now be predicted with any certainty.

Furthermore, as these nations consider their future nuclear security environment, they might decide that they cannot make a long-term commitment to a complete ban on nuclear testing. Continued nuclear testing would be necessary if a nation decides that it required new warhead designs, possibly in response to prospective missile defense deployments that devalued its nuclear ballistic missile force.

Supporters of the proposed ABM Treaty changes argue that Russia could not afford widespread advanced TMD systems such that they would cause concern among other nuclear powers and neighbors. But, the ABM Treaty is of unlimited duration, and what Russia may be able to do or choose to do 5 or 10 or 20 years from now cannot be known with certainty. The point is that potential adversaries may well have to consider a future wherein a revitalized Russia deploys widespread, effective TMD systems.

Figure 9.—Ballistic Missiles of Other Nuclear Countries and Proposed ABM Treaty Changes



PERCEPTIONS OF NUCLEAR DETERRENCE

A principal reason a nation acquires a nuclear weapons capability is to deter potential adversaries from taking a range of direct hostile actions, principally military attack. In the late 1960s and early 1970s, the United States and Soviet Union codified in arms control the belief that unconstrained offensive nuclear weapons forces and ballistic missile defenses was dangerous. Given the fact that both sides then possessed large numbers of strategic nuclear weapons, a major fear was that without severe limits on missile defenses, superpower crises could quickly escalate into a global nuclear conflagration.[22]

A nuclear-armed nation in a region, such as Asia or the Middle East, might similarly fear a future that includes unconstrained offensive nuclear missiles and missile defenses. Many, if not most, of the arguments that have applied to nuclear deterrence, stability, and defenses between the superpowers, probably apply to nuclear-armed regional antagonists. Although a lot of questions can be raised regarding this issue, it is not clear that the administration has answers for them.

REGIONAL BALANCES OF POWER

These points raise serious questions about the future of regional powers and regional balances of power. Could the introduction of advanced missile defense systems into any of several regions affect those regions in ways that adversely affect U.S. international interests? Advocates of the Treaty demarcation assert that widespread TMD deployments would build regional stability and serve as confidence-building measures. But, could the introduction of such systems by one of the ABM Treaty parties adversely affect U.S. international security interests where there is already widespread missile proliferation? For example, would a future Russian sale of advanced TMD systems to Syria or Libya contribute to stabilizing the Middle East or Europe? Would U.S. sales of advanced TMD systems to Japan, Ukraine,

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[22] Both sides apparently feared that in a crisis there would be enormous pressure to launch a nuclear attack first in order to destroy much of the other nation's offensive nuclear and defensive forces. This would then, arguably, enable one's own defenses to destroy as much of the residual, retaliatory attack as possible.

China,[23] or Israel contribute to regional stability in Asia, Eurasia, or the Middle East, or would they initiate new arms competition?

Because the ABM Treaty only applies to the relevant parties, many would argue that advanced TMD systems would not adversely affect the relationships among the partners. This does not appear to be in dispute, especially if the proposed changes are mutually agreed-upon. But, the world has changed and the implications of prospective exports of advanced TMD systems throughout the world has not been fully assessed or been debated publicly. It could well be that the unconstrained deployments of theater missile defenses as one response to widespread theater missile proliferation is a noble endeavor for the international community, but that has not been fully debated or considered.

U.S. ARMS CONTROL OBJECTIVES

Currently, there is a consensus in the Congress and the Executive Branch to pursue several arms control objectives: (1) a continued moratorium on nuclear testing and negotiation of a Comprehensive Test Ban (CTB); (2) continued opposition to further nuclear proliferation and a reversal of nuclear proliferation in several countries; (3) implementation of the START I and II agreements; and (4) continued, deep reductions in the nuclear arsenals of the United States and former Soviet Union. The proposed ABM Treaty changes regarding TMD raise a number of questions, many of which do not presently have answers. The proposed changes also may adversely affect U.S. arms control objectives. These questions and effects are now discussed.

MORATORIA ON NUCLEAR TESTS AND CTB NEGOTIATIONS

Currently, the United States, Britain, France, and the former Soviet Union have temporarily (and informally) halted all nuclear weapons testing. This cessation is the result of parallel unilateral moratoria, rather than by formal treaty.[24] China has not declared a moratorium of its own; it conducted a nuclear test in October 1993. Negotiations on a CTB are underway, and for the first time, many analysts are optimistic about the outcome.

As mentioned above, the prospective deployment of future, advanced TMD systems in countries such as Russia, introduces an unexpected factor in the nuclear modernization plans of countries such as France and China. If these two countries in particular were to decide that they have to retain the right to test new nuclear warhead designs as part of an effort to counter potential future TMD systems—the development of which is not impeded by treaties—then the likelihood of continuing the current moratorium or negotiating a CTB would be greatly diminished. Indeed, one French official suggested that the prospect of widespread advanced TMD deployments would lead to an end of the French moratorium by providing political support to those who favor renewed French testing.[25]

NUCLEAR NON-PROLIFERATION—1995 NPT EXTENSION

The 24-year-old Non-Proliferation Treaty (NPT) is up for formal review in 1995. At that time, the parties may decide it is no longer in their national interests to adhere to the Treaty, or they may decide to modify it and extend their commitment to it for another period of time or indefinitely. The U.S. goal is to make the Treaty of unlimited duration and to obtain this extension by the widest possible margin.

A long-standing challenge to the NPT results from perceptions of inequality; the nations that have nuclear weapons do not get rid of their weapons, and the nations that do not have nuclear weapons are banned from acquiring such weapons. A large component of this perceived inequality is that the nuclear powers have conducted many nuclear tests. Agreement to a CTB by 1995, or at least clear progress toward one, is viewed by many observers as the *sine qua non* for extending the NPT indefinitely by a wide margin. If some of the nuclear-armed nations determine that they cannot support a ban on nuclear testing, or that they must continue to build their forces numerically, or both, in order to counter prospective advanced TMD systems, it will add to the challenge of extending the NPT. On the other hand, will the possibility of widespread TMD deployments deter potential nuclear weapon states from pursuing nuclear weapons programs, especially those aimed at developing nuclear warheads for deployment on ballistic missiles?

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[23] For a treatment of these and related issues, see, U.S. Library of Congress. Congressional Research Service. Theater Missile Defense: Possible Chinese Reaction; U.S. Implications and Options, by Robert G. Sutter. CRS Report 94–154S. February 23, 1994.

[24] The United Kingdom conducts all its nuclear tests in the United States at the Nevada Test Site. The U.S. moratorium therefore precludes UK testing.

[25] Interview. December 1993.

GLOBAL BAN ON FISSILE MATERIAL PRODUCTION

Similarly, the United States seeks a ban on the production of fissile material. Might withdrawal of critical nations' support for a ban on nuclear testing or the NPT Extension work against the U.S. objective to negotiate a global ban on nuclear materials?

START IMPLEMENTATION

Implementing the START treaties became seriously complicated with the breakup of the Soviet Union, especially with Ukraine demanding various concessions from Russia and the United States.[26] Currently, significant progress toward implementation is being made. Although Ukraine states it wants to be party to the ABM Treaty, as Ukraine considers some of the implications of prospective, advanced TMD deployments in Russia, could Ukraine reconsider its commitment to remove strategic nuclear weapons from its soil? As an ABM Treaty party, could Ukrainian parliamentarians demand further START-related concessions or parity under the ABM Treaty, namely the right to deploy also an ABM site in Ukraine? Might this possibility then further complicate the implementation of START, especially with Russia?

CONTINUED DEEP REDUCTIONS IN STRATEGIC NUCLEAR WEAPONS

Although the START treaties are not yet implemented, many expect that once those treaties enter into force, additional arms control agreements will be pursued to cut U.S. and former Soviet strategic nuclear forces even further and those agreements may include British, French, and Chinese nuclear forces. On the other hand, if any of these countries determines that nuclear force proliferation is required for its national security in light of prospective, advanced TMD deployments, chances for deep cuts beyond START II could be diminished.

CONCLUSION

Today, there seems to be unanimity in the policy community that something must be done to prevent or reverse the global proliferation of weapons of mass destruction and their means of delivery. Differences occur over the appropriate means, with some advocating primarily diplomatic, economic, or arms control solutions, and others emphasizing the primacy of military options. Most agree, however, that some combination of options is necessary.

The proposal to establish a formal understanding with Russia and other former Soviet states on the distinction between theater and strategic ballistic missile defenses in the ABM Treaty goes to the heart of this debate. Many advocates of this proposal believe that the ABM Treaty remains vital to U.S. national security and that Treaty changes must be made to counter, militarily, real and looming threats from ballistic missiles to U.S. national security interests. Others believe the proposed changes could put the central purpose of the ABM Treaty and perhaps other U.S. arms control objectives at risk. Many are also skeptical that these threats will materialize or will threaten the United States or U.S. military forces based overseas. All seem to agree, however, that the outcome of the current debate will shape the future of U.S. TMD programs and the ABM Treaty, and hence, U.S. national security interests.

Mr. HILDRETH. Let me add that because of congressional guidance for the Congressional Research Service, my remarks will be confined to nonadvocative aspects of this issue.

As you know, the administration seeks to establish a formal understanding on the distinction between theater missile defenses not limited by the ABM Treaty, and strategic missile defenses that are limited. This proposal raises a number of issues and questions. This morning I am going to focus on four of them.

On the first issue, Congress has long expressed strong bipartisan interest in pursuing effective TMD systems. At the same time, although there has been strong criticism of the ABM Treaty, Congress as a whole has expressed its support.

These twin desires to develop effective TMD systems and support the treaty led some in Congress to propose legislation that became part of the fiscal year 1994 Defense Authorization Act, which did several things. And I only want to highlight one.

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[26] See, U.S. Library of Congress. Congressional Research Service. Arms Control After START. CRS Issue Brief, 91–148, by Steven A. Hildreth and Amy Woolf, updated regularly.

One of the more important things it did was to express a congressional view, now public law, that (a) the treaty does not limit defenses designed to counter modern theater missiles, and (b) the treaty only limits defenses that have demonstrated capabilities to counter strategic missiles.

This guidance gave support to those in the administration who favored establishing the demarcation. The administration's proposal is shown as figure two, page nine, of my report.

The figure here, figure two, shows that a gap exists between modern theater and strategic missiles. Supporters maintain that this gap is sufficiently wide to ensure that the demarcation will not impinge on the Treaty's ability to limit ABM systems.

Figures three and four in my report, pages ten and eleven, show the same proposal, but in a different way. They plot a missile's peak velocity as a function of its range.

Note that the demarcation corresponds roughly to a 3,200-kilometer range missiles. Also shown in figure four are the types of missiles that could be countered with advanced U.S. and Russian TMD systems.

The potential threats represented by most of these missiles cause grave concern here and abroad. The ABM Treaty demarcation is intended to permit advanced TMD capabilities against these and future threats.

But how are these missiles distributed, and who has them? Figure five in the report shows that about 85 to 90 percent of them are relatively short-range missiles of less than 900 kilometers range. Only 10 to 15 percent are capable of traveling greater than 900 kilometers. And the vast majority of these are in China and Saudi Arabia.

The future distribution of theater ballistic missiles may well look very different, primarily if North Korea continues to develop, produce, and export its ballistic missiles. Therefore, it would be useful to get a classified country-by-country intelligence community consensus of future missile proliferation that includes the likelihood of those countries threatening U.S. interests abroad.

The second issue I want to discuss deals with concerns raised over the capabilities of TMD systems envisioned by the United States. This can be done in several different ways.

And I want to just choose one. Because we all recall Desert Storm, I want to illustrate this point by the experience of the Patriot Missile System.

Patriot PAC–2 missiles were used against Iraqi-modified Scuds whose peak velocities were 40 percent faster than what PAC–2 was designed for and tested against. Now, according to the Pentagon, Patriots successfully engaged about 50 percent of these faster targets.

Let me make an analogy to the proposed demarcation. It means simply that TMD systems tested up to the 5-kilometer threshold will have some capabilities to counter missiles that fly faster than that.

If the Patriot analogy holds, advanced TMD systems could have some capability to counter missiles traveling up to 7 kilometers per second, or about 9,000 kilometers in range.

The capability of advanced TMD systems to counter missiles flying faster than the demarcation does not degrade catastrophically after 5 kilometers a second. This capability degrades gracefully, and the result is an ever shrinking defended area of footprint.

This engineering point is not so much in dispute; rather, the sides take divergent views on what it means. Most demarcation supporters maintain that any TMD capability to counter strategic missiles is theoretical and therefore meaningless. Others argue that while this capability exists, it is militarily insignificant.

At the other end of the spectrum, some believe advanced TMD systems would have significant ABM capabilities. This is all debatable. But I want to point out that two important points get missed by this debate.

First, the ABM Treaty does not say anything about theoretical or militarily insignificant or significant ABM capability. The treaty only says that neither party will give "missiles, launchers, or radars, other than ABM launchers or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory."

So from the treaty's perspective, a system with any ABM capability is subject to the treaty's limitations on ABM systems.

The second point that gets missed actually leads to my third issue, and that is the potential implications of advanced TMD systems for other nuclear and regional powers. Figure nine in my report, on page nineteen, shows the missile systems of these countries that could be affected by advanced TMD systems.

What has happened with the demarcation is that, if accepted, the United States will have introduced a new unplanned variable into the nuclear security calculations of Britain, France, China, and perhaps Israel, India, Pakistan, and North Korea.

The effect on their decisions cannot now be predicted with any certainty in large part because we cannot know how much defensive capabilities these nations will credit future advanced TMD systems.

But by permitting unrestricted missile defense capabilities against roughly 3,200-kilometer missiles, TMD systems could be developed and deployed so as to jeopardize the perceived effectiveness of virtually all the ballistic missile forces of these other nuclear powers.

Many might say so what. Let me offer a few reasons why this might be important to U.S. interests. Some or all of these current or nascent nuclear nations might conclude over the next few years that they can no longer be assured of being able to threaten or destroy the range of targets they now plan for with the same level of confidence, and consequently require a larger number of nuclear-armed missiles. They could decide, for example, to increase significantly the size of their force.

Also, some or all of these nations might decide that qualitative nuclear force modernization is necessary. Many such improvements, especially in nuclear warhead designs, would require continued nuclear testing.

Of course, for a variety of reasons, these nations might all decide they cannot or will not pursue these avenues of modernization. But the fact is, we cannot know at this point the course that they will take, and many courses they could take would arguably not be in U.S. national interests.

Many TMD supporters assert that because such systems are purely defensive, they therefore serve as confidence-building measures. These assertions have not been analyzed. Several questions can be raised.

For example, could advanced TMD deployments in regions marked by widespread missile proliferation affect regional balances of power? Note that the proposed ABM Treaty changes will neither limit TMD deployments, nor their export to third parties.

If it is true that TMD systems are inherently stabilizing, then should we not only welcome Japanese, French, and Israeli acquisition of advanced TMD systems, but also advanced TMD acquisition by Syria, China, Libya, Iran, or Pakistan?

Clearly, the ABM Treaty only applies to the relevant parties. It is not a panacea for the world's problems. But do we risk important national objectives if we do not fully understand the implications of prospective exports of advanced TMD systems to regions marked by widespread theater missile proliferation?

The final issues I want to raise concern potential implications for long-term U.S. arms control objectives. These include: No. 1, a continued moratorium on nuclear testing and negotiation of a CTB; No. 2,continued opposition to further nuclear proliferation and reversal of nuclear proliferation in several countries, No. 3, implementation of the START agreements, and No. 4, continued deep reductions in the nuclear arsenals of the world's nuclear powers.

If any or all of the non-U.S. and former Soviet Union nuclear countries determine that they have to modernize their nuclear ballistic forces to counter the perceived effects of advanced TMD systems, then any or all of these U.S. arms control objectives could be jeopardized.

For example, given the possibility someday of widespread, advanced Russian or Ukrainian TMD deployment, might France decide that it must keep option to continue nuclear testing?

Similarly, the Chinese might decide that a larger nuclear missile force might be necessary to counter TMD deployments in Asia or Russia.

If these types of decisions are made, several U.S. arms control goals could be adversely affected. We need to consider these implications of the proposed demarcation and how they bear on national security objectives.

Thank you.

[The prepared statement of Mr. Hildreth follows:]

PREPARED STATEMENT OF STEVEN A. HILDRETH

Mr. Chairman, I am pleased to be invited here this morning to share with you some observations on the Clinton administration's proposed ABM Treaty demarcation. My remarks today are based on a recently completed CRS Report for Congress, "The ABM Treaty and Theater Missile Defense: Proposed Changes and Potential Implications," which I would like to include here.

Let me add that because of congressional guidelines for the Congressional Research Service, my remarks will be confined to nonadvocative aspects of this issue.

As you know, the administration seeks to establish a formal understanding with Russia and other states of the former Soviet Union on the distinction between theater missiles defenses (TMD) not limited by the 1972 ABM Treaty and strategic ballistic missile defenses that are limited. The proposal would only limit defenses capable of countering ballistic missiles with peak velocities faster than 5 kilometers per second, which translates roughly into a 3,200 kilometer range missile.

This proposal raises a number of issues and questions that have long been of interest to Congress, particularly this Committee. This morning, I will focus on four of them.

First, I want to put the demarcation proposal in context of the current debate over TMD, and to discuss, in that context, global missile proliferation.

Second, I want to spend a few minutes talking about the capabilities of TMD systems envisioned and the questions raised by those capabilities.

Third, I want to talk about some of the potential implications of advanced TMD systems for other nuclear and regional powers besides the United States and former Soviet Union.

Finally, I want to discuss some potential implications for long-term U.S. arms control objectives that may have been overlooked in the current debate.

Regarding the first issue, for almost a decade leading to the 1991 Gulf War, Congress expressed strong bipartisan concern over apparent lack of Pentagon interest in pursuing effective TMD systems. It wasn't until after the war that TMD began to be emphasized on a par with that apparently envisioned by Congress. A major reason for this change was due to increasing concern over the proliferation of weapons of mass destruction and their means of delivery, especially ballistic missiles. Today, however, a greatly expanded TMD program—$2.1 billion in FY 1995 and about $18 billion through FY 1999—has invited closer congressional scrutiny.

At the same time, although there has been strong criticism of the ABM Treaty, Congress, as a whole, has expressed its continued support. These twin desires to develop effective TMD systems and support the Treaty led some in Congress to propose legislation, which became part of the FY 1994 Defense Authorization Act. The Act did several things. It: 1) urged immediate discussions with ABM Treaty partners to clarify distinctions between TMD and ABM systems; 2) expressed a congressional view (now public law) that (a) the ABM Treaty does not limit missile defenses designed to counter modern theater ballistic missiles, and (b) the Treaty only limits missile defenses that have *demonstrated* capabilities to counter strategic ballistic missiles; and 3) urged the Secretary of Defense to hurry and complete a treaty compliance review of advanced TMD programs so those programs would not be delayed.

This guidance gave support to those in the administration who favored establishing the ABM Treaty demarcation. The administration's proposal is shown as Figure 2 in the CRS report. The figure shows that a gap exists between what are modern theater and strategic ballistic missiles. Supporters maintain this gap is sufficiently wide to ensure that the demarcation will not impinge on the Treaty's ability to limit ABM systems.

Figures 3 and 4 in the report show the same proposal, but in a different way. They plot a missile's peak velocity as a function of its range. Note that the demarcation corresponds roughly to a 3,200 kilometer range missile. Also shown in Figure 4 are examples of missiles from the developing world that could be countered with advanced U.S. and Russian TMD systems. While most of these missiles are in countries that are hostile to U.S. interests, some are not.

The potential threats represented by most of these missiles cause grave concern here and abroad. The ABM Treaty demarcation is intended to permit advanced TMD capabilities that could counter these and future threats. But looking beyond who has these missiles, it is useful to look at how many such missiles there are and specifically who has them. From public and unclassified sources, Figure 5 shows that about 85 to 90 percent of all these missiles are relatively short-range missiles of less than 900 kilometers range. Only about 10 to 15 percent are capable of travelling greater than 900 kilometers, and the vast majority of these are deployed today by China and Saudi Arabia.

The future distribution of theater ballistic missiles may well look very different, primarily if North Korea continues to develop, produce, and export its ballistic missiles. The point is that questions are raised over what threats exist today, and what threats are likely to materialize over the near and long-term, to justify the current TMD effort and the proposed demarcation. It would be useful to get a classified country-by-country intelligence community consensus of future missile proliferation that includes the likelihood of those countries threatening U.S. interests abroad.

The second issue I want to discuss deals with concerns raised over the capabilities of the TMD systems envisioned by the United States. This can be done in several ways. Because we all recall Desert Storm, I want to illustrate this point by the experience of the Patriot antitactical missiles. Patriot PAC–2 missiles were used against Iraqi-modified Scuds whose peak velocities were 40 percent faster than what PAC–2 was designed for and tested against. According to the Pentagon, Patriots successfully engaged about 50 percent of these faster targets.

Let's make an analogy to the proposed demarcation. This means that missile defense systems that are tested up to the 5 kilometer threshold will have some capabilities to counter attacking missiles that fly faster than that. If the Patriot analogy holds, this means that advanced TMD systems could have some capability to counter missiles travelling at 7 kilometers per second, or about 9,000 kilometers in range. The capability of advanced TMD systems to counter missiles flying faster than the demarcation does not degrade catastrophically. This capability degrades gracefully; the result is an ever shrinking defended area or footprint.

This engineering point is not so much in dispute, but rather the sides take divergent views on what it means. Most supporters of the proposed demarcation argue that any TMD capability to counter strategic ballistic missiles is theoretical and therefore meaningless. Others maintain that while this capability exists it is militarily insignificant. At the other end of the spectrum, some believe advanced TMD systems would have significant ABM capabilities. This is all debatable. But, two points get missed by this debate. First, the ABM Treaty doesn't say anything about theoretical or militarily insignificant or significant ABM capability. The Treaty only says that neither party will give "missiles, launchers, or radars, other than ABM launchers, or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory." So, from the Treaty's perspective, a defensive system with any ABM capability is subject to the Treaty's limitations on ABM systems.

The second point that gets missed actually leads to my third issue, that is, the potential implications of advanced TMD systems for other nuclear and regional powers. Figure 9 on page 10 shows the missile systems of these countries that could be affected by advanced TMD systems.

What has happened with the demarcation is that, if accepted, the United States will have introduced a new, unplanned variable into the nuclear security calculations of Britain, France, and China, and perhaps Israel, India, Pakistan, and North Korea. The affect on their decisions cannot now be predicted with any certainty in large part because we cannot know how much defensive capability these nations will credit future advanced TMD systems. But, by permitting unrestricted missile defense capabilities against roughly 3,200 kilometer missiles, TMD systems could be developed and deployed so as to jeopardize the perceived effectiveness of virtually all the ballistic missile forces of these other nuclear powers.

Many might say, so what does this matter. Let me offer a few reasons why this could be important to U.S. national security interests. Some or all of these current or nascent nuclear nations might conclude that they can no longer be assured of being able to threaten or destroy the range of targets they plan for with the same level of confidence, and consequently require a larger number of nuclear-armed nuclear missiles. They could decide to increase significantly the size of their force. Also, some or all of these nations might decide that qualitative nuclear force modernization is necessary. Many such improvements, especially in nuclear warhead designs, would require continued nuclear testing. Of course, for a variety of reasons, these nations might all decide they cannot pursue these avenues of modernization. But the fact is, we cannot know at this point the course they will take, and many courses they could take would arguably not be in U.S. national interests.

Many supporters of TMD assert that because such systems are purely defensive in character they therefore serve as confidence-building measures. But these assertions have not been analyzed. Several questions can be raised. For example, could advanced TMD deployments in regions marked by widespread missile proliferation affect regional balances of power? Note that the proposed ABM Treaty changes will not limit TMD deployments or their export to third parties. If TMD systems are inherently stabilizing, then should we not only welcome Japanese and Israeli acquisition of advanced TMD systems, but also advanced TMD acquisition by Syria, China, Libya, Iran, or Pakistan?

Clearly, the ABM Treaty only applies to the relevant parties. It is not a panacea for the world's problems. But do we risk important national objectives if we do not fully understand the implications of prospective exports of advanced TMD systems to regions where there is widespread theater missile proliferation?

The final issues I want to raise are some potential implications for long-term U.S. arms control objectives. Currently, there is a majority in the Congress and policy in the Executive Branch to pursue several arms control objectives, including: 1) a continued moratorium on nuclear testing and negotiation of a CTB; 2) continued opposition to further nuclear proliferation and reversal of nuclear proliferation in several countries; 3) implementation of the START agreements, and; 4) continued deep reductions in the nuclear arsenals of the world's nuclear powers.

If any or all of the non-U.S.-former Soviet Union nuclear countries determine that they have to modernize their nuclear ballistic missile forces to counter the perceived effects of advanced TMD systems that might be deployed by their adversaries, any or all of these U.S. arms control objectives could be jeopardized. For example, given the possibility someday of widespread, advanced Russian or Ukrainian TMD deployments, might France decide that it must retain the option to continue nuclear testing? Similarly, the Chinese might decide that a larger nuclear missile force might be necessary to counter TMD deployments in Asia or Russia. If so, these would adversely affect several U.S. arms control goals.

We need to consider these implications of the proposed demarcation and how they bear on national security objectives. Thank you.

The CHAIRMAN. Thank you very much indeed, Mr. Hildreth.

From a layman's viewpoint, could you explain in a few words what we are talking about here. As I understand it, the question is whether there will be two levels of defensive hardware that could be launched and that would render some aspects of the ABM Treaty inoperable. Is that a correct statement? Mr. Hathaway?

Mr. HATHAWAY. I think, Mr. Chairman, in the two-tier concept only the upper tier of that concept is really involved in the ABM Treaty discussions. The lower tier would be targeted against missiles with velocities much lower than those of the upper tier.

So the questions that Steve was highlighting relative to the speed of the missile and the capabilities of the missile are more relevant to the upper tier proposals, which is THAAD, or the Army system. And eventually they are talking about a Navy upper tier system.

The CHAIRMAN. And the reason for that is that the lower tier is not going as fast.

Mr. HATHAWAY. That is correct. The missiles against which the lower tier would be officially targeted would not be going as fast.

The CHAIRMAN. But it would be a different system of defense.

Mr. HATHAWAY. That is correct.

The CHAIRMAN. If THAAD is to be the upper group, then the advanced Patriot system is the lower——

Mr. HATHAWAY. That is correct. The Patriot advanced capability three would be the lower tier system.

The CHAIRMAN. If both the upper tier and the lower tier were to be moved ahead, as I figured out roughly, that would be about $20 billion for that——

Mr. HATHAWAY. Yes, sir.

The CHAIRMAN. That would be $15 billion for the upper tier and $5 million for the lower tier.

Mr. HATHAWAY. That is correct, sir. It is a great deal of money.

The CHAIRMAN. And the total cost of the National Missile Defense System, if deployed in defense of the United States, that would be about $20 billion in total, or would it be more?

Mr. HATHAWAY. If you add up those numbers with the $14.9 billion and the $3.2 billion, and you add the two others at about $4 billion each, your numbers are correct, sir.

I point out, though, that most of that money would be expended in future years. And our experience in most weapons systems over the years has been that the projections at this stage have been a lot lower than the actual expenditures later on. So I would expect that you might even talk about greater numbers.

The CHAIRMAN. So the least that it would be, it would be around $20 billion——

Mr. HATHAWAY. Yes, sir.

The CHAIRMAN [continuing.] And the most that it might be, it might be in the range of double that.

Mr. HATHAWAY. I would not really want to put a most on it.

The CHAIRMAN. Right. And the speed cutoff is 5 kilometers a second, is that correct?

Mr. HATHAWAY. Steve, could you address that?

Mr. HILDRETH. The demarcation proposal would establish an upper bound—a threshold of 5 kilometers per second as the maximum peak velocity of the incoming target, the incoming missile.

The CHAIRMAN. From that it would go——

Mr. HILDRETH. That is roughly a 3,200-kilometer range missile as an incoming missile that you would want to defend against.

The CHAIRMAN. How fast would that be?

Mr. HILDRETH. The flight time of a missile like that?

The CHAIRMAN. Well, the cutoff point.

Mr. HILDRETH. Five kilometers.

The CHAIRMAN. Five kilometers a second—and if it is more than five kilometers a second?

Mr. HILDRETH. Then it would be considered an ABM—then it would be considered under—it would come under the terms of the ABM Treaty.

The CHAIRMAN. But if it is less than that, then what would it be?

Mr. HILDRETH. Then it would not be restricted by the ABM Treaty. It would be considered a TMD system. Yes.

The CHAIRMAN. And also the lower speed is the lower tier as well. In other words, the upper tier would not be covered.

Mr. HILDRETH. The upper tier would be covered by that.

The CHAIRMAN. Right. Now I understand it. OK. Could the Russians compete in this system? Do they have the hardware and the ability to move it?

Mr. HILDRETH. I do not have—I only have anecdotal evidence on that. I know that they are trying to sell some of their air defense systems to France. There are negotiations going on right now for some older Soviet systems. Presumably, they do not have anything comparable to THAAD at this point.

Keep in mind that the treaty is of unlimited duration, and given a different regime in Russia, and another decade down the road, we could have a commitment to this kind of capability.

The CHAIRMAN. If the Russians did move ahead on a THAAD-type system, would you expect it to be conventionally armed?

Mr. HILDRETH. I do not know. It would be speculation.

The CHAIRMAN. It would be speculation.

Mr. HILDRETH. Right. There would not be anything in the treaty to prohibit it from being nuclear or conventionally armed, as a TMD system.

The CHAIRMAN. I turn now to my colleague, Senator Simon.

Senator SIMON. I apologize for not being here for your testimony.

I am just glancing through your statement, Mr. Hildreth. I have real concerns about where we may go, and I gather, just glancing through your statement quickly, that you have concerns also in terms of what this would mean.

And if I may quote this one sentence, "What is happening with the demarcation is that, if accepted, the United States will have introduced a new unplanned variable into the nuclear security calculation, Britain, France, China, and perhaps India, Israel, Pakistan, and North Korea."

Having an unplanned variable in this sensitive field is probably not a desirable security thing, is that correct?

Mr. HILDRETH. All I am saying is that it introduces it. I cannot predict what—I do not know what the French government will eventually do—how they eventually will deal with this.

If the past is any indicator, they do not like unplanned variables. They do not like new things introduced, especially unilaterally on the part of the United States.

And I would suspect that if they look at it, they might come to the conclusion that they do not like it, and that they are not quite sure how to deal with it, especially as they are in sort of the middle of the current modernization of their long-range missile forces.

Senator SIMON. But from the viewpoint of France, or even North Korea, this kind of modification does not add to stability.

If at anytime we have an agreement that we think we want to change a little bit, and we go ahead and change it, that does not add to the feeling of confidence on the part of other nations to what we are doing and where we are going. I do not want to put words in your mouth, but is that a reasonable——

Mr. HILDRETH. I do not think that it is self-evident, that it is stabilizing. What I am suggesting is that these are considered as implications of this proposal, and that I do not believe that the administration has thought through and factored this in when they considered going ahead with the demarcation.

It may end up, after analysis, that it is a good thing. I do not necessarily see that. But what I am suggesting is that the administration has not thought this through and figured this in their calculations.

Senator SIMON. All right. Mr. Hathaway, I regret I have not had a chance to glance through your statement as I did Mr. Hildreth's. Do you differ with him in your basic——

Mr. HATHAWAY. Well, basically, my statement covered what the Department is doing in the programs that it has now, what the cost, and the schedule, and the performance of those systems are going to be, and how they relate. So it did not get into the point that Steve was raising in his.

Senator SIMON. All right. I thank you very much.

Mr. HATHAWAY. Thank you.

The CHAIRMAN. Thank you, gentlemen, very much. We may have some questions that we will submit to you in writing. The record will be kept open for that purpose through the week.

Mr. HATHAWAY. If you have any, do so.

The CHAIRMAN. Thank you very much. We now come to our second panel.

I ask that you welcome the Hon. Spurgeon Keeny, President of the Arms Control Association, Former Deputy Director of the ACDA; John Rhinelander, legal adviser to the SALT I ABM Treaty negotiations, presently a partner of Shaw, Pittman, Potts & Trowbridge; the Hon. Sidney N. Graybeal, Chief Scientist, Science Applications International Corporation; and Dr. George Lewis, Research Fellow, Defense and Arms Control Studies Program at MIT.

We will start off with Mr. Spurgeon Keeny, if he would lead off.

STATEMENT OF SPURGEON KEENY, JR., PRESIDENT AND EXECUTIVE DIRECTOR, THE ARMS CONTROL ASSOCIATION

Mr. KEENY. Mr. Chairman and members of the committee, I appreciate your invitation to present my views on the administration's current efforts to modify the ABM Treaty to facilitate the development and deployment of defenses against tactical ballistic missiles.

As my prepared statement, which I hope you will put it in the record, indicates.

The CHAIRMAN. It will be inserted in full into the record.

Mr. KEENY. I have been involved in the ballistic missile defense issue for over 35 years, and participated in the policy decisions and negotiations of the original ABM Treaty.

As this committee is well aware, the present administration has launched a major effort to persuade Russia to agree to a new single criterion to define the distinction between strategic ballistic defense systems, which are limited by the ABM Treaty, and tactical defenses, which are not.

The proposed criterion is so permissive that it would allow the unlimited deployment of defense systems defined as tactical, even though they might actually possess substantial capabilities against strategic systems.

I am persuaded that a reinterpretation of the ABM Treaty, based on such a permissive definition, would not only undercut the fundamental objectives of the agreement, but would seriously jeopardize broader long-term U.S. security interests.

The creation of a giant loophole in the ABM Treaty, permitting ballistic missile defenses with potential strategic capabilities would have the effect of blocking further reductions in strategic nuclear warheads below START II levels, and might even complicate implementation of this as yet unratified agreement.

This new impediment to further nuclear reductions could also seriously complicate U.S. efforts to obtain agreement on the indefinite extension of the Nuclear Nonproliferation Treaty at the review conference that will begin in less than a year.

Now, in order to enhance assurance of the effectiveness of the limitations on ABM systems, the parties to the ABM Treaty originally undertook, among other things, "not to give missiles, launchers, or radars, other than ABM interceptor missiles, ABM launchers, or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode."

Although the treaty does not define quantitatively what constitutes "capabilities to counter strategic ballistic missiles" or "testing in an ABM mode," the negotiating history, ratification hearings, and subsequent practice, as well as agreements developed in the Standing Consultative Committee, make clear that the United States interpreted these restrictions very strictly.

The capability to intercept reentry vehicles traveling at more than 2 kilometers per second, corresponding to missiles with ranges less than 1,000 kilometers, was used as a criterion for the internal checking of treaty compliance of U.S. development programs.

This issue has a long history. The principal internal technical objection to the original ABM Treaty was the concern of some members of the Defense Department that the Soviet SA–5 air defense system might have or could be upgraded to have an ABM capability.

A major effort during the negotiations and in the SCC was subsequently made to ensure that the Soviet Union did not exploit this gray area by testing air defense missiles against high-performance targets.

Now, to legitimize the testing and deployment of the Theater High-Altitude Area Defense (THAAD) system, the Clinton administration has proposed that unless a missile defense system has a "demonstrated"—i.e., tested—capability against reentry vehicles traveling at more than 5 kilometers per second, it would not be restricted by the ABM Treaty.

However, a system that actually has a capability to intercept a reentry vehicle with a velocity of 5 kilometers per second, which corresponds to a missile range of some 3,500 kilometers, would also have significant capability against strategic reentry vehicles with reentry velocities of 6 or 7 kilometers per second, corresponding to ranges of 7,000 to 10,000 kilometers.

Moreover, the United States has associated the concept of capability with actual testing so that presumably much more capable systems than THAAD could be deployed, provided they were not actually tested against reentry vehicles traveling more than 5 kilometers per second.

I believe it is particularly significant that a Russian counter-proposal to also limit the velocity of the interceptor missiles was rejected, even though it would still have permitted a THAAD-type system.

The reason for this rejection apparently was the Clinton administration's desire to keep the door open for even more capable missile defense systems, such as sea- and air-based missiles, incorporating light-weight exoatmospheric projectiles, LEAP, and other highly sophisticated sensor systems and kill mechanisms with much greater potential to defend against strategic missiles.

The Clinton administration appears to be operating on the proposition that as long as the prohibition on testing against reentry vehicles with velocities greater than 5 kilometers per second is complied with, everything else prohibited under the ABM Treaty to prevent the deployment of a territorial defense or the development of a base for such a defense is permitted.

Consequently, in addition to all numerical limits on interceptors and radars, this would eliminate the bans on mobile land-, sea-, and air-based launchers and radars, space-based components, such as Brilliant Eyes, and apparently the whole panoply of new physical principles for kill mechanisms.

In short, the SDI program is alive and well, traveling in the guise of a powerful new tactical missile defense, which would be only a short step from a true strategic missile defense, if it were not already there.

Possibly, the most disturbing aspect of this entire situation is the lack of serious public discussion, and apparently governmental discussion as well, of the full implications of this new initiative.

One must recall that the objective of the ABM Treaty was to prevent the deployment of ABM systems for the defense of the territory of either the United States or the Soviet Union in order not to threaten either side's retaliatory forces so as to permit the limitation and subsequent reductions of offense strategic nuclear arms.

Whatever the outcome of these current negotiations, Russia will, of course, be free to deploy its own version of this very permissive tactical missile defense.

Although the administration does not seem concerned about this, apparently because of Moscow's economic distress, Russia could, at a much lower cost, deploy tactical defenses that would have significant strategic capabilities.

Russian negotiators have reportedly stated that Russia interceptors would be armed with nuclear warheads, rather than the highly sophisticated, conventionally armed homing devices planned for U.S. interceptors. And the Russian systems, which would be deployed at fixed points around its periphery, could be internetted with existing radars.

Such a Russian system, even at the levels of several thousand missiles contemplated in the present U.S. deployment plans, could not negate the effectiveness of the U.S. deterrent.

However, the possibility of such a legal deployment will be advanced as an argument against strategic reductions, perhaps down to, and certainly below the START II levels.

Moreover, the possibility of such a Russian deployment will very likely dissuade Britain, France, and China from joining in future strategic reductions or even commitments to cap their strategic forces at present levels.

The administration is rushing ahead to revise the ABM Treaty to accommodate these major programs without having made a persuasive case that a plausible threat can reasonably be anticipated to justify their very high costs, which we have just heard discussed.

It has been estimated, as you heard, that the THAAD system alone will cost around $15 billion, not counting the cost of the proposed associated lower tier ERINT deployment, or the substantial additional costs of the proposed Navy and Air Force programs, incorporating LEAP and other advanced technologies.

Now, the annual report to the President and to Congress by former Secretary of Defense, Les Aspin, takes a very alarming and I believe misleading position as to the threat, when he asserted that by the year 2000 there will be some 20 countries with ballistic missiles and some 25 countries will possess and will be developing weapons of mass destruction.

However, despite these large numbers, the only listed countries in that report that appear to be possible adversaries of the United States or its allies, other than the states of the former Soviet Union and China, which have long had the capability to strike the United States, are North Korea, Iran, Syria, Libya, and Iraq. The latter is no longer a threat.

The postulated threat of 3,500-kilometer missile, which generates the 5-kilometer-per-second criterion, is apparently based on the Chinese CSS–2 missile.

This missile, however, has been sold only to Saudi Arabia, and further sales are clearly ruled out, as long as China abides by the Missile Technology Control Regime. Short-range missiles, such as improved versions of the Scud, do exist in a few possible adversary states, and may proliferate further. However, as evidenced in the Gulf war, these highly inaccurate missiles, when armed with conventional warheads, do not present a serious threat to the United States forces in the field.

A nation with only a small arsenal of nuclear weapons is most unlikely to use them tactically against U.S. ground forces through fear of overwhelming retaliation.

Finally, if a country wants to utilize such weapons of mass destruction as acts of terror against urban areas, there are other more easily adaptable and reliable methods of delivery, such as fighter bombers, to accomplish the mission.

If the Defense Department concludes that it must have a defense for certain high-value military targets, such as disembarkation ports, beachheads, airfields, or even key overseas population centers, much less expensive treaty-compliant systems can be developed and deployed. Systems such as the Patriot PAC–3, or ERINT, which could and presumably will rectify many of Patriot's numerous shortcomings, should be suitable for these more modest requirements, than defending areas the size of most of the countries.

Efforts to reinterpret the ABM Treaty to permit highly capable tactical missile systems would constitute a major setback in the Clinton administration's avowed objective of achieving the indefinite extension of the Nonproliferation Treaty at next year's conference.

The close coupling of restraints on ballistic missile defenses and the prospect for reduction of strategic nuclear forces have long been recognized. In fact, in the preamble of the ABM Treaty, the United States and the Soviet Union proclaimed that, "Mindful of their obligations under Article VI of the treaty on the Nonproliferation of Nuclear Weapons, and declaring their intention to achieve at the earliest possible date the cessation of nuclear arms race and to take effective measures toward reductions of strategic arms."

Consequently, the drastic weakening of the ABM treaty, with its inevitable impact on the prospects for further reductions in strategic nuclear arms, will be seized upon by those countries that already question whether the nuclear powers are adequately fulfilling their obligations under article VI of the Nonproliferation Treaty.

Above all, a U.S. decision to deploy highly capable tactical missile defenses in the apparent belief that the nuclear nonproliferation regime will probably fail, and that the Missile Technology Control Regime and the recently completed Chemical Weapons Convention, already signed by, I believe, 157 nations, will be ineffective, can hardly be expected to create an environment where states will be anxious to renounce nuclear weapons for the indefinite future.

This needless undercutting of our larger objectives is all the more to be regretted, because the nuclear nonproliferation regime is, in fact, stronger than it has ever been. With the elimination of the potential for large-scale proliferation in the states of the former Soviet Union now within sight, with the elimination of Iraq as a nuclear proliferator for the foreseeable future, and the evolving international consensus against the acceptability of a nuclear North Korea, the question must be asked, whence the threat that justifies this massive response.

The administration has gone alarmingly far down the path to an unnecessary and, I believe, dangerous response to a greatly exaggerated threat. This committee is to be commended for initiating a serious debate on the issue, which affects fundamental U.S. security interests. One is reminded of the courageous actions of the Senate in preventing the implementation of the Reagan administration's so-called broad interpretation of the ABM Treaty, which would have gutted the ABM Treaty.

The Senate must now insist that this reinterpretation of the ABM Treaty to permit highly capable tactical missile defenses be subject to the amendment process, so that the proposal can be given a critical public examination before these programs that could undercut broader U.S. security interests are allowed to proceed.

Thank you.

[The prepared statement of Mr. Keeny follows:]

PREPARED STATEMENT OF SPURGEON M. KEENY, JR.

Mr. Chairman and members of the Committee, I appreciate your invitation to present my views on the Administration's current efforts to modify the ABM Treaty to facilitate the development and deployment of defenses against tactical ballistic missiles.

I have followed ballistic missile defense for over thirty-five years, since I was first involved in the subject as a Defense Department representative on the Gaither Study on the evolving Soviet threat for President Eisenhower in 1957. As the responsible member of the NSC staff under President Johnson, I participated in the original efforts to control ballistic missile defenses in order to limit the build-up of offensive strategic missiles. Under President Nixon, as Assistant Director of the Arms Control and Disarmament Agency (ACDA), I was a member of the Verification Panel that developed policy for the ABM Treaty and chaired the Backstopping Committee for the negotiations. As Deputy Director of ACDA under President Carter, I was responsible for verification problems relating to the treaty. Subsequently, in my present non-governmental capacity, I opposed the so-called "broad" interpretation concocted by the Reagan administration to legalize the development and testing of elements of the Strategic Defense Initiative that were clearly prohibited by the treaty—an action the Senate prevented by its timely and forceful intervention.

As the Committee is well aware, the present Administration has launched a major effort to persuade Russia to agree to a new single criterion to define the distinction between strategic ballistic defense systems, which are limited by the ABM Treaty, and tactical defenses, which are not. The proposed criterion is so permissive that it would allow the unlimited deployment of defense systems defined as "tactical" which, actually possess substantial capabilities against strategic systems. I am persuaded that a reinterpretation of the ABM Treaty based on such a permissive definition of "tactical" would not only undercut the fundamental objective of the agreement, but would seriously jeopardize broader long-term U.S. security interests. The creation of a giant loophole in the ABM Treaty permitting ballistic missile defenses with potential strategic capabilities would have the effect of blocking further reductions in strategic nuclear warheads beyond START II levels and might even complicate implementation of this as yet unratified agreement. This new impediment to further nuclear reductions would also seriously complicate U.S. efforts to obtain agreement on the indefinite extension of the Nuclear Non-proliferation Treaty at the Review Conference that will begin in less than a year.

In order "to enhance assurance of the effectiveness of the limitations on ABM systems * * *," the parties to the ABM Treaty undertook *inter alia* "not to give missiles, launchers, or radars other than ABM interceptor missiles, ABM launchers, or ABM radars, capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode * * *;" Although the treaty does not define quantitatively what constitutes "capabilities to counter strategic ballistic missiles" or "testing in an ABM mode," the negotiating history, ratification hearings, and subsequent practice as well as agreements developed in the Standing Consultative Committee (SCC) make clear that the United States interpreted these restrictions very strictly. The capability to intercept reentry vehicles travelling at more than two kilometers per second (corresponding to missiles with ranges less than 1,000 kilometers) was used as a criterion for the internal checking of treaty compliance of U.S. development programs.

This issue has a long history. The principal internal technical objection to the ABM Treaty was the concern of some members of the Defense Department that the Soviet SS–5 air defense system might have, or could be upgraded to have, an ABM capability. A major U.S. effort during the negotiations and in the SCC was made to insure that the Soviet Union did not exploit this gray area by testing air defense missiles against high-performance targets. For example, the Reagan administration subsequently expressed serious concern about potential Soviet treaty non-compliance because the SA–12 air defense missile, which had reportedly been tested against SS–12 ballistic missiles (with a range of less than 1,000 kilometers and reentry velocity of around 2.5 kilometers per second), could, "add significant point-target defense coverage to a nationwide Soviet ABM deployment."

Now, the Clinton administration has proposed, asserted to legitimize the testing and deployment of the Theater High-Altitude Area Defense (THAAD) system, that unless a missile defense system has a demonstrated (i.e. tested) capability against reentry vehicles travelling at more than 5 kilometers per second, it would not be restricted by the ABM Treaty. However, a system that actually has a capability to intercept a reentry vehicle with a velocity of 5 kilometers per second, which is equivalent to a missile range of some 3,500 kilometers, would also have significant capability against strategic reentry vehicles with reentry velocities of 6 or 7 kilometers per second (corresponding to ranges of 7,000 to 10,000 kilometers). Moreover, the United States has associated the concept of capability with actual testing so that presumably much more capable systems than THAAD could be deployed, provided they were not actually tested against reentry vehicles travelling more than 5 kilometers per second.

I believe it is particularly significant that a Russian counter-proposal to also limit the velocity of interceptor missiles was rejected, even though it would still have permitted a THAAD-type system. The reason for this rejection was the Clinton administration's desire to keep the door open for even more capable missile defense systems, such as sea- and air-based missiles, incorporating light-weight exoatmospheric projectiles (LEAP) and other highly sophisticated sensor systems and kill mechanisms with much greater potential to defend against strategic missiles.

The Clinton administration appears to be operating on the proposition that as long as' the prohibition on testing against reentry vehicles with velocities greater than 5 kilometers per second is complied with, everything else prohibited under the ABM Treaty to prevent the deployment of a territorial defense or the base for such a defense is permitted. In addition to all numerical limits on interceptors and radars, this would eliminate the bans on mobile land-, sea-, and air-based launchers, space-based components ("brilliant eyes") and apparently the whole panoply of "new physical principles" for kill mechanisms. In short, the SDI program is alive and well travelling in the guise of a powerful new tactical missile defense, which would be only a short step from a true strategic missile defense, if it were not already there.

Possibly the most disturbing aspect of this entire situation is the lack of serious public discussion, and apparently governmental discussion as well, of the full implications of this new initiative. One must recall that the objective of the ABM Treaty is to prevent the deployment of ABM systems for the defense of the territory of either the United States or the Soviet Union in order not to threaten retaliatory forces so as to permit the limitation and subsequent reductions of offensive strategic nuclear arms. Whatever the outcome of these negotiations, Russia will of course be free to deploy its own version of this very permissively defined "tactical" missile defense. Although the administration does not seem concerned about this, apparently because of Moscow's economic distress, Russia could at a much lower cost deploy tactical defenses that could have significant strategic capabilities. Russian negotiators have reportedly stated that Russian interceptors would be armed with nuclear warheads, rather than the highly sophisticated, conventionally armed homing devices planned for U.S. interceptors; and the Russian systems, which would be deployed at fixed sites around its periphery, could be internet with existing radars.

While such a Russian system even at the levels of several thousand missiles contemplated in the present U.S. deployment plans should not in fact negate the effectiveness of the U.S. deterrent, even the possibility to such a legal deployment will be advanced as an argument against strategic reductions perhaps down to, and certainly beyond START II levels. Moreover, the possibility of such a Russian deployment will very likely dissuade Britain, France, and China from joining in future strategic reductions or even commitments to cap their strategic forces at existing levels.

The administration is rushing ahead to revise the ABM Treaty to accommodate these major programs without having made a persuasive case that a plausible threat can reasonably be anticipated to justify their high cost. The proposed THAAD program alone has been estimated to cost at least $15 billion, not counting the cost of the proposed associated lower tier ERINT deployment or the substantial additional cost of the proposed Navy and Air Force programs incorporating LEAP and other advanced technologies.

The annual report to the President and Congress by former Secretary of Defense Les Aspin takes a very alarming and, I believe, misleading position on the threat when he asserted that, by the year 2000, there will be some 20 countries with ballistic missiles, and that some 25 countries will possess or be developing weapons of mass destruction. However, despite these large numbers, the only listed countries that appear to be possible adversaries of the United States or its allies, other than the states of the former Soviet Union and China, which have long had the capability to strike the U.S. are: North Korea, Iran, Syria, Libya, and Iraq, which is no longer a threat.

The postulated threat of a 3,500 kilometer missile, which generates the 5 kilometer per second target criterion, is apparently based on the Chinese CSS–2 missile. This missile, however, has only been sold to Saudi Arabia, and further sales are clearly ruled out as long as China abides by the Missile Technology Control Regime. Short range missiles such as an improved version of the Scud do exist in a few possible adversary states and may proliferate further. However, as evidenced in the Gulf War, these highly inaccurate missiles, when armed with conventional warheads, do not present a serious threat to U.S. forces in the field. A nation with only a small arsenal of nuclear weapons is most unlikely to use them tactically against U.S. ground forces through fear of overwhelming retaliation. Finally, if a country wants to utilize such weapons as an act of terror, there are other, more easily adaptable and reliable methods of delivery, such as fighter bombers, to accomplish the mission.

If the Defense Department concludes that it is cost effective to have a defense for high-value military targets such as disembarkation ports, beachheads, and airfields, or even key overseas population centers, much less expensive, treaty compatible systems can be developed and deployed. Systems such as Patriot PAC III or ERINT, which could rectify many of Patriot's numerous shortcomings, should be suitable for these more modest requirements, short of defending areas the size of most relevant countries.

Efforts to reinterpret the ABM Treaty to permit highly capable "tactical" missile defenses would constitute a major setback in the Clinton administration's avowed objective of achieving an indefinite extension of the NPT at next year's Conference. The close coupling of restraints on ballistic missile defenses and the prospects for reductions of strategic nuclear forces has always been recognized. In fact, in the preamble to the ABM Treaty, the United States and the Soviet Union proclaimed that, "Mindful of their obligations under Article VI of the Treaty on the Non-proliferation of Nuclear Weapons; Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to take effective measures toward reductions in strategic arms. * * *" Consequently, the drastic weakening of the ABM Treaty with its inevitable impact on the prospects for further reductions in strategic offensive nuclear arms, will be seized upon by those that already question whether the nuclear powers are fulfilling their obligations under Article VI of the NPT.

Above all, a U.S. decision to deploy highly capable "tactical" missile defenses, undertaken in the apparent belief that the nuclear non-proliferation regime will probably fail and that the MTCR and the recently completed Chemical Weapons Convention—already signed by 157 nations—will be ineffective, can hardly be expected to create an environment where states will be' anxious to renounce nuclear weapons for the indefinite future. This needless undercutting of our larger objectives is all the more to be regretted because the nuclear non-proliferation regime is in fact stronger than it has ever been. With the favorable resolution of the potential for large-scale proliferation in the states of the former Soviet Union in sight, Iraq's elimination as a proliferator for the foreseeable future, and the evolving international consensus against a nuclear North Korea, the question must be asked whence the threat that justifies this provocative response?

The administration has gone alarmingly far down the path to a dangerous and unnecessary response to a greatly exaggerated threat. This Committee is to be commended for initiating a serious debate on the issue, which affects fundamental U.S. security interests. One is reminded of the courageous actions of the Senate in preventing the implementation of the Reagan administration's so-called "broad" interpretation of the ABM Treaty, which would have gutted the ABM Treaty. The Senate must now insist that this reinterpretation of the ABM Treaty to permit highly capable "tactical" missile defenses be subject to the amendment process so that the proposal can be subject to searching and critical examination before these programs that could undercut broader U.S. security interests are allowed to proceed.

The CHAIRMAN. Thank you very much, Mr. Keeny.

We now turn to Mr. Rhinelander, who is the original architect of a great deal of the treaty.

STATEMENT OF JOHN B. RHINELANDER, LEGAL ADVISER TO THE SALT I DELEGATION, INCLUDING THE ABM TREATY NEGOTIATIONS

Mr. RHINELANDER. Thank you, Mr. Chairman.

Mr. Chairman and members of the committee, I am privileged to appear before you today to talk about the ABM Treaty and ATBMs.

I have a 14-page written statement which I request be printed in the record. And I will just pick and choose from among it, and not read the statement in full.

The CHAIRMAN. It will be inserted into the record in full.

Mr. RHINELANDER. Thank you very much.

Mr. Chairman, as you noted, I was the legal adviser to the U.S. SALT I delegation that negotiated the ABM Treaty, and I have written and testified on that subject frequently over the past 20 years. In fact, I thought the subject was largely behind us a couple of years ago, but it seems to keep reoccurring periodically.

Mr. Chairman, the world has changed dramatically in the past twenty years, and even in the last five years, but there are still thousands of strategic warheads in Russia, and it is premature, as some people suggest, to reconsider the ABM Treaty right now.

I think that it is a fundamental question you will all have to consider, but my bottom line, and I suspect the bottom line of everybody here on the panel, is that it is important to keep that treaty in effect.

The differences which may be among us are on some policy choices, but not the underlying one, as to whether the treaty should or should not be preserved.

The treaty has not been thoroughly reviewed or revised or updated in the 22 years since it has been in effect. It should have been. It should be now. I have written extensively on that subject. And we will not get into all those areas.

Five years ago Sid Graybeal and a dozen of others of us worked on a book called "Defending Deterrence." Senator Nunn wrote the forward of it. We looked at lot of issues.

The ATBM issue was one we looked at, but was not a prominent issue at the time, the reason being, with the INF Treaty completed 2 years before that, the principle threat of the shorter and intermediate range missiles was eliminated by the INF Treaty.

One of the fundamental questions that the Senate is going to have to look at now is, what is the realistic threat that we need to deal with in the future, in the absence of those Soviet missiles.

I will concentrate on the legal issues today, Mr. Chairman, and really get down to the bottom line. During the summer of 1972, when the Senate was considering its advice and consent to the ABM Treaty, there is the shared understanding—reflected in the August 8, 1972, Congressional Record—that Senator Proxmire put into the record containing the exchanges he had with the Department of Defense.

The shared understanding between the Senate and the Executive was that an offensive ballistic missile, with a maximum velocity exceeding 2 kilometers per second, or a maximum altitude exceeding 40 kilometers, was to regarded as a strategic ballistic missile, and thus subject to the full panoply of the ABM Treaty.

A defense designed against a slower missile—a so-called anti-tactical ballistic missile—is not covered by the ABM Treaty, except for a collateral provision that a non-ABM system could not be tested in an ABM mode.

The cutoff point, the shared understanding at the time the treaty was before the Senate in 1972, was the 2 kilometers per second of the target vehicle.

My bottomline is unless and until the treaty is amended, the development, testing, deployment, and transfer abroad of a system such as THAAD would violate at least four articles of the ABM Treaty, because the THAAD clearly has ABM capabilities, as understood in 1972.

This would include article I, which prohibits a nationwide defense or the base for such a defense.

It would include article III, the basic article, dealing with permitted deployments. This article limits deployments to a single site with no more than 100 fixed, ground-based launchers. That article also incorporates the limitations on the prohibitions on the deployment of new technologies that are capable of substituting for the technologies we had at the time.

The third article that would be violated would be article V, which prohibits development, testing as well as deployment of mobile ground-based systems, THAAD would be a mobile system. This article also prohibits sea-based, air-based, and space-based ABM systems.

If, in fact, the Navy and the Air Force were to continue on with programs to follow-on THAAD, you would have problems with both the sea- and air-based prohibitions here in article V of the treaty.

And finally there is article IX, which prohibits the transfer of ABM technology abroad and the deployment outside national territories.

All of these internetted provisions of the treaty would be violated, unless there was an amendment to the treaty to take care of THAAD and the programs which might follow THAAD.

Now, what the administration has apparently proposed is twofold. One would be an explicit understanding that the definition of strategic ballistic missiles be upgraded from the 2 kilometers per second, which was the 1972 standard, to not exceeding 5 kilometers per second.

The second part of it would be a new standard in terms of capabilities. We had talked about, and it was critically important in 1972, we were going to look at the capabilities of the Soviet systems.

Intent can change but not the capabilities. Effectively, the administration proposes to delete the capabilities test for non-ABM systems by saying they have to be demonstrated.

Effectively, you would have a single test in artivle IV (a). As long as it is tested in a mode that does not violate the 5-kilometer-per-second standard, the administration does not care what the ultimate capability of that system is.

It is a very different approach from what we adopted in the treaty in 1972, because we wanted to be able to challenge the Soviets in terms of capabilities.

And while it is not central to what we are talking about today, I would just remind you that the United States did challenge the Krasnoyarsk radar long before that radar was up. In fact, it was never up and running. We challenged it because of capabilities.

So I think the distinction between capabilities and intent is critically important, if you are looking for the treaty to continue to do in the future what it did in the past, which is to tightly constrain the now Russian, the former Soviet, systems.

In my opinion, both of the proposals that the administration is putting forward, if accepted by the other side, and at the moment it is not clear whether the other side is going to accept it, would be amendments to the treaty requiring Senate advice and consent, and ratification by all of the other parties before the amendments could become effective.

I am not aware of any disagreement with this legal conclusion of mine, except for the caution that we do not know what will be eventually accepted, because they are still in negotiation. I accept that.

But if, in fact, what the administration has proposed were to be accepted, there is no doubt in my mind that these would be amendments, and would have to come up here for advice and consent of the Senate.

I would remind you that in 1974 there was the first and so far the only amendment to the ABM Treaty limiting the deployment areas from two to one. So we do have that precedent.

Now, the complicating factor, of course, is that there is no longer just one party on the other side. There could be as many as ten, more likely, four, which is what we have with START I, and so this issue of successor states is going to have to be dealt with in the SCC at the same time as the substantive discussions which are going on.

I would just make two points in passing on successor states. I have written extensively on the subject with George Bunn, and I have cited the most recent article in my statement.

Under general principles of international law, Russia is now a party to the ABM Treaty. It is the continuing state. There is a question of whether or not any of the other 14 members of the Commonwealth of Independent States, formally members of the Soviet Union, are also parties.

That will have to be negotiated out, as will the terms under which they come in. If there are others this is critically important. Basically, the status quo should continue, i.e., that none of the other ones be permitted to deploy ABM systems, the full panoply of ABM systems, in their own countries. That, I think, is all negotiable, but it is going to have to be negotiated as all the whole successor state questions are brought in.

Senator BIDEN. Mr. Chairman, may I ask Mr. Rhinelander for a clarification on that point?

The CHAIRMAN. Go ahead, please.

Senator BIDEN. Would each of those remaining 13 treaties, assume we went to every former republic and renegotiated an ABM Treaty, would each of them require the advice and consent of the Senate?

Mr. RHINELANDER. That was my second point. As a matter of practice, the U.S. generally does not tell other countries what they have to do to bring an agreement into force. We basically say we look to you and we rely on you.

However, when it came to START I, the U.S. was adamant that the four countries now on the other side, in fact, submit START I before their legislature. One of them in particular, Belarus, said we prefer to do this purely by executive action.

And the U.S. said, "No dice. We want to have your legislature approve this, because we do not want you to come back to us later on and say we did not have the full authority of our government behind it."

So my answer to you would be that we do not generally tell countries what to do. I think it would be entirely inappropriate for us to switch signals in this area and say that in the START I we thought, and we still think—because Ukraine, as you know, has not fully acted on the second condition on the Lisbon Protocol—we think it was appropriate, in fact, necessary for you to get legislative approval then, but not here.

Mr. Chairman, let me just conclude with a couple of thoughts. As a matter of policy, not speaking as law, as a matter of policy, I would urge the administration to scale down its proposal from the 5 kilometers a second to, say, 2 or 3 kilometers, which is in the range of what we were talking about in 1972.

If that is not done, then I think there needs to be additional constraints added on, and not just the two changes the administration has proposed, because I think that leads to open-ended breaches in the treaty, and effectively, the treaty is being undermined very significantly.

I have come up with two recommendations to the committee. One is you request detailed analysis of what is prohibited, but particularly what is permitted, under the administration's current proposals. You are not getting a full picture on that at all.

Second, I would say to this committee, and the entire Senate, it is important to have a full-blown debate on all these issues—THAAD, a follow-on to THAAD, the impact this might have on the START I, the START II, the NPT, and other things—before you get into the position where you are presented with a completed, signed amendment to the ABM Treaty, and it has to come up to you for advice and consent and approval by two-thirds of your members.

It is important to get the cart before the horse, and to have the debate on the policy, and the wisdom of what is being done, before you are faced with an amendment.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Rhinelander follows:]

Prepared Statement of John B. Rhinelander

Mr. Chairman and Members of the Committee: I am privileged to appear before this Committee to testify on the 1972 ABM Treaty and Anti-Tactical Ballistic Missiles (ATBMs).

I was legal adviser to the US SALT 1 Delegation that negotiated the ABM Treaty, and have written and testified about it frequently over the past twenty years. These include "The SALT I Agreements," the chapter I wrote in a book edited by Mason Willrich and myself, *SALT: The Moscow Agreements and Beyond* (The Free Press, 1974), and "The Legal Environment," a chapter in a book co-edited by Antonia Chayes and Paul Doty, *Defending Deterrence: Managing the ABM Treaty Regime into the 21st Century* (Pergamon-Brassey's, 1989).

I am Vice Chairman of the Arms Control Association which, among other things, publishes *Arms Control Today*. In an earlier period of my life, I spent my active duty in the Army with the first generation antiaircraft defensive missile system, the conventionally armed NIKE-Ajax.

I. BACKGROUND

Senator Nunn, in writing the Foreword for the 1989 book edited by Chayes and Doty, *Defending Deterrence*, stressed it was important to examine "how we keep the ABM Treaty viable for at least the next decade." He then quoted with favor the editors' observation that "'This book is based upon the premise that the United States will continue to rely on deterrence provided by offensive nuclear systems well into the next century and will want to continue the support that the ABM Treaty supplies to that posture.'"

The world has changed considerably since early 1989 when *Defending Deterrence* was published. The Warsaw Pact has dissolved. The Soviet Union has fractured into fifteen successor states with Russia as the continuing state, but with strategic nuclear weapons still located in three others: Belarus, Kazakhstan and Ukraine. START I and START II have been signed, but neither has been ratified. But there are still thousands of former Soviet strategic nuclear weapons targeted at the United States.

An arms control optimist could see the possibility of extraordinary and favorable change by the end of this century: a CWC ratified and being implemented; the NPT extended indefinitely; a CTBT of indefinite duration ratified and in effect; a bilateral fissile cutoff agreement for weapons between Russia and the United States completed, extended multilaterally, and coupled with first a bilateral, then a multilateral, agreement on disposition of weapon-grade fissile materials; START I and II ratified with implementation accelerated; a START III agreement between Russia and the United States reducing their deployed strategic weapons to 1500, coupled with an informal freeze on the strategic weapons of the United Kingdom, France and China; and initial agreements or understandings relating to nuclear-weapon capability in the Indian subcontinent and the Middle East.

If all of this were to come about by the year 2000, at a time when Russia was locked into its version of a democratic society, based on a growing market economy, and its relations with the "near abroad" peaceful and stable, then it might be time to reconsider the need for the ABM Treaty.

But at this time, any such reconsideration is premature. I will only remind the Committee of the consequences on the U.S. strategic posture, and ongoing arms control negotiations, of two unexpected events in the past—the Soviet invasions of Prague in 1968 and Afghanistan in 1979.

As for the future, the jury is still out—and will probably remain so for several decades if not a generation—on the evolution of nuclear-armed Russia and its relationship with the U.S. We should be prudent in the meantime.

II. MODERNIZING THE ABM TREATY

The ABM Treaty has not been thoroughly reviewed, revised and updated in the 22 years since its signing and entry into force in 1972. That needs to be done on a comprehensive basis. We discussed three approaches in *Defending Deterrence:*

maintaining the current regime; moving toward a more restrictive regime; and moving toward a more permissive regime.

We purposely did not choose among these approaches. While we examined ATBM issues, we did not focus our attention on them. The reason was that, in the aftermath of the INF Treaty, including its global ban on all U.S.-Soviet ground-based, shorter and intermediate range (500 to 5500 kilometers) ballistic missiles, the most important, longer-range threat had been removed.

Whether there is, in fact, a credible threat to the U.S. and its interests at the intermediate ranges (i.e., greater than 1000 kilometers) from countries other than Russia is the first critical issue that needs to be discussed in connection with ATBMs and the ABM Treaty. I will leave it to other panel members to focus on this issue, and the best cost-effective responses to those threats that are deemed realistic.

I will concentrate on legal issues under the ABM Treaty raised by ATBMs, and the Administration's proposal in particular.

III. ATBMs AND THE ABM TREATY

The Clinton administration has proposed changes to the ABM Treaty to accommodate developing, testing and deploying abroad, and presumably selling to U.S. allies, the THAAD and other ATBM systems.

THAAD is a ground-mobile, highly capable, endoatmospheric ATBM using infrared homing technology. Presumably, THAAD would be deployed in tandem with a lesser-capable ATBM, such as Patriot PAC–3 or ERINT. The Navy is reported to be interested in a sea-based ATBM more capable than THAAD—the Lightweight Exoatmospheric Projectile (LEAP) system, and the Air Force may have its air-based candidate for boost-phase intercept.

THAAD would be designed to counter incoming targets which have an approximate 3500 kilometer range and a velocity of 5 kilometers per second. The capabilities of the proposed Navy and Air Force systems are less clear, and I will not address them further.

During the summer of 1972, when the Senate was considering its advice and consent to the ABM Treaty, the *shared understanding* between the Senate and the Executive was that an offensive ballistic missile with a maximum velocity exceeding 2 kilometers per second, or a maximum altitude exceeding 40 kilometers, was to be regarded as a *strategic* ballistic missile, and a defensive system to counter it would be considered an "ABM system" under the ABM Treaty.

This definition is critical since the ABM Treaty's key provisions apply to systems that counter *strategic* ballistic missiles. Defensive systems, specifically ATBMs, that counter less capable (i.e., tactical) offensive ballistic missiles are not constrained by the ABM Treaty, except for the provision in Article VI (a) not to "test in an ABM mode."

The other constraint in Article VI (a), not to give *ABM capability* to non-ABM systems, stands independent of the "test in an ABM mode" criteria. Limitations based on *capabilities* in Articles II and VI (a) were at the heart of the U.S. approach to a verifiable ABM Treaty. The fact that ATBMs, as such, were not covered by the ABM Treaty was important to the United States, which was developing an ATBM (the SAM–D) that became the Patriot.

Accordingly, unless and until the ABM Treaty is amended, the development, testing, deployment and transfer abroad of THAAD would violate at least four articles of the ABM Treaty because THAAD has ABM capabilities, as understood in 1972. There is no suggestion in the 1972 Executive-Senate exchange that the legal criteria (e.g., 2 kilometers per second) would creep up, without approval of both the other side and the Senate. The four articles which would be violated are:

(1) *Article I,* which prohibits a *nationwide* ABM system, and a base for such a system;

(2) *Article III,* which prohibits the deployment of any ABM system except a single site with no more than *100 fixed, ground-based* launchers, including associated ABM radar constraints (this prohibition includes new technology that would be capable of substituting for an ABM launcher, an ABM missile, or an ABM radar);

(3) *Article V(1),* which prohibits the development, testing and deployment of *mobile* ground-based, as well as sea-based, air-based and space-based ABM components and systems; and

(4) *Article IX,* which prohibits the *transfer* of ABM components and systems to other states, and the *deployment outside* national territories.

IV. THE ADMINISTRATION'S PROPOSAL

The Administration apparently proposes to legalize programs such as THAAD by:

(1) an explicit agreement that the definition of *strategic* ballistic missiles be raised from a target missile with a maximum velocity of 2 kilometers per second (the 1972 Executive-Senate understanding, which was never formally agreed to with the Soviets) to a maximum velocity of 5 kilometers per second; and

(2) an agreement that the new standard would apply only to *demonstrated* capability, that is, tested capability.

In my opinion, both of these proposals, if accepted by the other side, would be "amendments" to the ABM Treaty requiring Senate advice and consent, and ratifications by all parties, before they could become effective. I am not aware of any disagreement with this legal conclusion.

The complicating factor, of course, is that any amendatory instrument may have *as many as ten* parties on the other side (the number of CIS states that signed the Bishkek resolution on October 9, 1992 indicating they "will implement the terms" of the ABM Treaty on their territory) *but at least four* such parties (those now parties to START I).

I will not dwell on successor state issues. George Bunn and I have analyzed them in depth with respect to the NPT, ABM Treaty, START I and II in "The Arms Control Obligations of the Former Soviet Union," published in the *Virginia Journal of International Law* (Winter, 1993).

Two points are worth noting:

(1) Under general principles of international law, Russia is now a party to the ABM Treaty as the continuing state. The questions what other states are also parties as successor states, and under what conditions any ABM-related item may be deployed outside Russia (including ABM systems, large phased-array radars for early warning (OLPARs), and ABM test ranges) are matters for negotiation with Russia and the United States.

(2) Since the U.S. insisted that Belarus, Kazakhstan and Ukraine approve START I and the NPT by legislative action, it would be extremely short-sighted to urge or permit the other parties to the ABM Treaty to approve any amendments to the ABM Treaty by executive action alone.

V. CONCLUSIONS AND RECOMMENDATIONS

When the ABM Treaty was completed in 1972, we expected it would be formally interpreted and amended from time to time. Little has been done except the 1974 Protocol, amending deployment sites from two to one, and the 1978 and 1985 interpretive agreements on "test in an ABM mode." Much detailed work is needed by agreement of the parties.

While the dividing line under U.S. law and precedent is not clear as to when a subsequent agreement amounts to an "amendment," the best recent guidance is from the Senate Armed Services Committee at the time of review of the 1987 INF Treaty. The Committee concluded that "technical changes" did not require prior Senate approval, but "fundamental obligations" did. There should be little doubt that the proposed ABM Treaty changes (which the Administration misleadingly describes as "clarifications") effect "fundamental obligations," and therefore require Senate advice and consent. This was the case with the 1974 Protocol to the ABM Treaty.

As a matter of policy, I would:

(a) urge the Administration to change its proposal by (i) limiting the target velocity criteria to 2, or perhaps 3, kilometers per second, rather than 5 kilometers per second, and (ii) dropping the "demonstrated" qualification which effectively eliminates the important "capability" criterion from Articles II and VI(a); or

(b) if the Administration maintains its present proposals and the other parties accept them, then additional constraints should be added (such as possible limits on the altitude of the target, the velocity of ATBM interceptors, constraints on ATBM radars and on space-based sensors, and ATBM deployment constraints whether components are mobile ground based, or based at sea or in the air).

The Administration's present proposal, without either less or more, would destroy the effectiveness of the ABM Treaty. Further, this would be in a way that could singularly disadvantage the United States over Russia in an area where U.S. concerns were outspoken during the SALT I negotiations in the 1970s (SAM upgrade) as well as during the Reagan era in the 1980s. We should also recall that Russia does not have the equivalent of U.S. infrared and other high tech capabilities permitting non-nuclear kills. Any ATBMs Russia deploys on its territory will be nuclear-armed as are its ABMs around Moscow. Possible deployment of Russian nuclear-armed ATBMs abroad would be a major concern.

I would urge the Committee to request a detailed analysis of what is prohibited, but particularly what is permitted, under the Administration's current proposals, and Russia's counter proposals. Analysis made public to date is totally inadequate.

I would further urge the entire Senate to consider whether a proposed open-ended breach of the ABM Treaty, forced by THAAD and perhaps sea-based and air-based follow-on ATBM programs—all of which are expensive in an age of a shrinking defense budget—is in the *net* U.S. security interest. This should be fully debated before the Senate is faced with the question of whether two-thirds of its members favor advice and consent to a signed treaty amendment.

The CHAIRMAN. Thank you very much. I think we will followup with your suggestion of seeing what is permitted under this proposal. Thank you for that suggestion.

Senator SIMON. Mr. Chairman, I am going to have to leave. If I could just comment on that, I am concerned that we are going to have no debate, and that we are just going to bypass the ABM Treaty, and that there is not going to be any submission for an amendment of the treaty.

And I think the message has to come from the Foreign Relations Committee, Mr. Chairman, that we think if they proceed with this development, there has to be an amendment to the ABM Treaty.

Now, frankly, I am going to vote against any such amendment, but I do not think that we should let this thing just slip by quietly without major attention to it.

The CHAIRMAN. I appreciate what you are saying, Senator.

Senator SIMON. Thank you.

The CHAIRMAN. Dr. Graybeal.

STATEMENT OF SIDNEY N. GRAYBEAL, CHIEF SCIENTIST, SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

Dr. GRAYBEAL. Thank you, Mr. Chairman.

It is a pleasure to appear before your committee again to present my views on why the needed, effective Theater Missile Defenses, known as TMD, are compatible with the ABM Treaty.

Like my colleagues on the left, I have also been involved in strategic defenses since the 1960's. I served as the alternate executive officer throughout the SALT I negotiations, chaired the ABM Treaty Working Group, which negotiated article VI, the article currently in question, and was the first U.S. Commissioner of the Standing Consultative Commission, the body responsible for implementing the treaty.

I have remained closely involved in activities related to the treaty, including the debate regarding the broad versus the narrow interpretation. I was happy to be a part of the debate along with Senator Nunn and my colleagues. I have also been involved in the issues that we are considering today.

My testimony covers four fundamental points. First, the rationale for the ABM Treaty remains valid today. Second, however, the treaty needs to be updated, further clarified, or modified to take into account the changing world.

Third, the overall approach of the Clinton administration toward clarification of the treaty in order to facilitate effective theater missile defenses is right on track.

Fourth, the U.S. Congress and the executive branch must avoid forcing a choice between two national security requirements: maintaining the ABM Treaty, and providing effective theater missile defenses. Forcing such a choice is not necessary. Both requirements are clearly possible and should be pursued.

The basic premise of the ABM Treaty is stated in its preamble, "Effective measures to limit anti-ballistic missile systems would be a substantial factor in curbing the race in strategic offensive arms and would lead to a decrease in the risk of the outbreak of war involving nuclear weapons."

This premise remains valid today. The offense-defense linkage and the concerns about strategic stability will remain throughout the 1990's. And, indeed, Russia has specifically linked START limitations to the ABM Treaty.

Even when the START II limits are reached by the year 2003 deadline, each side will still be able to retain 3,000 to 3,500 strategic warheads, a significant number of which will remain on strategic ballistic missiles.

In 1972, the year in which the ABM Treaty entered into force, the United States had approximately 4,000 warheads on some 1,700 strategic ballistic missiles. The Soviet Union had approximately 2,000 warheads on about the same number of strategic ballistic missiles.

The ABM Treaty has been neglected for 12 years. During this period some urged abandonment of it, while others tried to adopt and implement a unilateral interpretation which truly would have eviscerated the treaty.

In contrast, in the last several months, the Clinton administration has reaffirmed the narrow or correct interpretation of the treaty, has advocated continued efforts to strengthen the treaty during its 5-year review, has withdrawn some of the more outlandish amendments tabled in the Standing Consultative Commission by the Reagan and Bush administrations, and is engaged in active negotiations of an agreed clarification to the treaty, which will facilitate the development and testing of an effective theater missile defense system necessary to meet the real and emerging theater ballistic missile threats faced by the United States, Russia, and some U.S. allies and friends.

As the committee knows, there are real theater ballistic missile threats. More than 30 types of ballistic missiles are either operational or under development in the Third World.

While a number of countries, such as Libya, have very limited ballistic missile inventories that give them crude regional capabilities, other nations, including Syria, Iran, Iraq, and North Korea, are moving beyond crude regional capabilities through a variety of modernization and acquisition efforts.

New suppliers, primarily China and North Korea, are introducing missiles that are longer in range and more effective than the Scud-B, including the Chinese M–9 and the North Korean Nodong–1.

North Korea is also known to be developing the Taepo Dong–1 and the Taepo Dong–2 ballistic missiles, which, according to the CIA, could eventually threaten all of Japan, China, Australia, New

Zealand, and Southeast Asia. "Jane's Defense Weekly" assesses the Taepo Dong–2 missile to have a range of about 3,500 kilometers.

These ballistic missiles will be capable of delivering conventional high explosive, chemical, biological, or nuclear warheads.

In the time that it will take to field an effective theater missile defense against these missiles, which is five to eight years, the more capable of these delivery systems could further proliferate, and additional new missiles could appear.

These threats will not disappear regardless of our best nonproliferation and counter-proliferation efforts. The United States and Russia have both recognized the need to provide effective theater missile defenses for protection against these real and emerging threats.

The Clinton administration approach is to seek an agreed clarification of the treaty in the SCC in order to facilitate the acquisition of effective theater missile defense systems to meet the emerging threat consistent with the purpose and intent of the ABM Treaty.

Anti-Tactical Ballistic Missile—ATBM—systems, the systems that are used for theater missile defense, are not limited, per se, by the ABM Treaty.

However, as had been noted earlier, article VI(a) states that the parties must not give non-ABM components the capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and they must not be tested in an ABM mode.

Implementing article VI in the new international security environment requires an agreed clarification of the current, not 1972, differences between strategic and theater ballistic missiles.

In 1972, then director of Defense, Research and Engineering, John Foster, testified in the Senate as to what he believed to be the approximate upper boundary of non-ABM testing, the so-called Foster Box, consisting of a maximum reentry velocity and altitude for ballistic missile targets.

Although his testimony was never made public, in an unclassified letter to Senator William Proxmire, he provided parameters of 2-kilometers-per-second velocity and 40 kilometers altitude.

He also noted that strategic ballistic missiles at that time reached altitudes well above the atmosphere and peak velocities of about 4 to 7 kilometers per second.

The Foster Box was internal Department of Defense guidance for U.S. tests requiring compliance review. It was not an agreed-upon dividing line between strategic and tactical ballistic missiles, and it was never officially discussed with the Soviets.

In 1972, strategic ballistic missiles, as recognized by those people involved in the negotiations both in the administration and the Congress, within the context of the ABM Treaty were those missiles limited by the Interim Agreement.

These missiles included the Soviet SS–N–6, a 3,000-kilometer missile, with a maximum velocity close to 5 kilometers per second.

The few remaining SS–N–6 missiles will probably be removed from Russian strategic forces in the mid-1990's. The emerging theater ballistic missile threat includes missiles with ranges in the order of 3,000 to 3,500 kilometers, and maximum velocities of about 5 kilometers per second.

Most current modern strategic ballistic missiles have ranges over 9,000 kilometers, and maximum velocities of over 7 kilometers per second.

Permitting ATBM testing against ballistic missiles with velocities up to 5 kilometers per second will facilitate achieving effective theater missile defenses without violating the ABM Treaty.

The 2-kilometer-per-second buffer between the 5 kilometers for tactical and 7 kilometers for strategic ballistic missiles would be verifiable by national technical means, the only verification means for the ABM Treaty.

Some have questioned the Clinton administration's adoption of the "demonstrated" criterion for judging capabilities of ballistic missile defenses. And I agree with Mr. Rhinelander, the treaty deals with capabilities, not intentions, but what are the criteria for determining capabilities?

As I have just noted, the ABM Treaty is verified by national technical means alone. While simulations and computer projections are useful for design engineers and program managers, the capabilities derived through use of these simulations cannot be verified by national technical means.

Thus, utilizing simulations or computer projections to determine system capabilities would result in an unacceptable dual standard. The United States would tie its hands without the ability to verify the other party's simulations of capabilities.

The only verifiable means for determining the capabilities of a ballistic missile defense component or system is by demonstrated activities, such as testing in the ABM mode. And that is not the only demonstrated capability.

No military commander will accept for operational use a system whose capabilities have not been demonstrated by actual flight testing.

Adoption of the demonstrated approach, perhaps buttressed by confidence-building measures, is completely consistent with the intent of the ABM Treaty and its verification regime.

As you know, Mr. Chairman, the Senate has adopted a Congressional finding, now codified in law, which states that the ABM Treaty does not apply to TMD systems unless such systems are tested against or have demonstrated capabilities to counter modern strategic ballistic missiles.

The ABM Treaty was intended to be clarified and modified as changing threats and technologies dictated. The last significant clarification of the treaty was the 1978 Agreed Statement. This agreed statement, incidentally, also related to article VI (a).

During the Reagan and Bush administrations, the treaty languished. Intended as a living document, it is now badly in need of CPR.

Mr. Chairman, in conclusion, the supporters of the ABM Treaty should not force the Clinton administration and the Congress to make a choice between the treaty and effective theater missile defenses.

Most responsible citizens would choose an effective theater missile defense to protect the lives of U.S. men and women deployed overseas.

Achieving effective theater missile defenses which could be deployed rapidly or shared with friends and allies could also be a deterrent to the proliferation of ballistic missiles and to their use.

Forcing a choice between the treaty and effective TMD is not necessary. The Clinton administration has demonstrated that we can successfully meet both national security requirements.

Thank you, Mr. Chairman, for your attention. I will be happy to try to answer any of your questions.

[The prepared statement of Dr. Graybeal follows:]

PREPARED STATEMENT OF SIDNEY N. GRAYBEAL

Mr. Chairman, it is a pleasure to appear before your Committee to present my views on why the needed, effective theater missile defenses (TMD) are compatible with the ABM Treaty. I served as Alternate Executive Officer throughout the SALT I negotiations, chaired the ABM Treaty working group which negotiated Article VI—the article currently in question—and was the first U.S. Commissioner of the Standing Consultative Commission, the body responsible for implementing the Treaty. I have remained closely involved in activities related to the Treaty, including the debate regarding the broad versus the narrow interpretations of the Treaty and the issue before your Committee today.

My testimony covers four fundamental points:

- The rationale for the ABM Treaty remains valid today.
- However, the Treaty needs to be updated and further clarified.
- The overall approach of the Clinton Administration toward clarification of the Treaty in order to facilitate effective theater missile defenses is right on track.
- The U.S. Congress and the Executive Branch must avoid forcing a choice between two national security requirements: maintaining the ABM Treaty and providing effective theater missile defenses. Forcing a choice is not necessary: both requirements are clearly possible and should be pursued.

The basic *premise* of the ABM Treaty is stated in its preamble: "Effective measures to limit antiballistic-missile systems would be a substantial factor in, curbing the race in strategic offensive arms and would lead to a decrease in the risk of outbreak of war involving nuclear weapons." This premise remains valid. The offense-defense linkage and concerns about strategic stability will remain throughout the 1990s, and, indeed Russia has specifically linked START limitations to the ABM Treaty. Even when the START II limits are reached by the year 2003 deadline, each side will still be able to retain 3,000 to 3,500 strategic warheads, a significant number of which will remain on strategic ballistic missiles. In 1972, the year in which the ABM Treaty entered into force, the United States had approximately 4,000 warheads on some 1,700 strategic ballistic missiles. The Soviet Union had approximately 2,050 warheads on about the same number of strategic ballistic missiles; some Soviet SS–9 ICBMs were equipped with three multiple reentry vehicles.

The ABM Treaty has been neglected for twelve years. During this period, some urged abandonment of it, while others tried to adopt and implement a *unilateral* interpretation which truly would have eviscerated the Treaty. In contrast, in the last several months, the Clinton Administration has reaffirmed the "narrow" or correct interpretation of the Treaty, has advocated "continued efforts to strengthen" the Treaty during its Five Year Review, has withdrawn some of the more outlandish amendments tabled in the Standing Consultative Commission by the Reagan and Bush Administrations, and is engaged in active negotiations of an *agreed* clarification to the Treaty which will facilitate the development and testing of an effective theater missile defense system necessary to meet the real and emerging theater ballistic missile threats faced by the United States, Russia, and some U.S. allies and friends.

As the Committee knows, there are *real* theater ballistic missile threats. More than thirty types of ballistic missiles are either operational or under development in the Third World. While a number of countries, such as Libya, have very limited ballistic missile inventories that give them crude regional capabilities, other nations, including Syria, Iraq, Iran, and North Korea, are moving beyond crude regional capabilities through a variety of modernizing and acquisition efforts. New suppliers, primarily China and North Korea, are introducing missiles that are longer in range and more effective than the SCUD–B, including the Chinese M–9 and the North Korean Nodong-1. North Korea is also known to be developing the Taepo Dong-1 and Taepo Dong-2 ballistic missiles which, according to the CIA, could eventually threaten all of Japan, China, Australia, New Zealand, and Southeast Asia. These ballistic missiles are, or will be, capable of delivering conventional HE, chemical, biological, or nuclear warheads. In the time that it will take to field an effective defense against these missiles—five to eight years—the more capable of these delivery systems could further proliferate and additional new missiles could appear. These threats will not disappear regardless of our best non-proliferation and counter-proliferation efforts. The United States and Russia have recognized the need to provide effective theater missile defense systems for protection against these real and emerging threats.

The Clinton Administration's approach is to seek an agreed clarification of the Treaty in the SCC in order to facilitate the acquisition of effective TMD systems to meet the emerging threat consistent with the purpose and intent of the Treaty. Anti-Tactical Ballistic Missile (ATBM) systems, the systems for TMD, are not limited *per se* by the ABM Treaty. However, Article VI (a) states that the parties must not give non-ABM components the "capabilities to counter strategic ballistic missiles or their elements in flight trajectory" and they must not be tested "in an ABM mode."

Implementing Article VI in the new international security environment requires an agreed clarification of the *current* differences between strategic and tactical/theater ballistic missiles. In 1972, then Director of Defense, Research and Engineering John Foster testified in the Senate as to what he believed to be the appropriate upper boundary for non-ABM testing, the so-called Foster Box, consisting of maximum reentry velocity and altitude for ballistic missile *targets*. Although his testimony was never made public, in an unclassified letter to Senator William Proxmire, he provided parameters of 2 km/sec velocity and 40 km altitude. He also noted that strategic ballistic missiles reached altitudes well above the atmosphere and peak velocities of about 4 to 7 km/sec. The Foster Box was internal Department of Defense guidance for U.S. tests requiring compliance review; it was not an agreed-upon dividing line between strategic and tactical ballistic missiles, and it was never officially discussed with the Soviets.

In 1972, "strategic ballistic missiles," in the context of the ABM Treaty, were those limited by the Interim Agreement; these missiles included the SS–N–6, a 3,000 km-range missile with a maximum velocity close to 5 km/sec. The few remaining SS–N–6 missiles will probably be removed from Russian strategic forces in the mid-1990s. The emerging theater ballistic missile threat includes missiles with ranges in the order of 3,000 km and maximum velocities of about 5 km/sec. Most current *modern* strategic ballistic missiles have ranges over 9,000 km and maximum velocities over 7 km/sec. Permitting ATBM testing against ballistic missiles with velocities up to 5 km/sec will facilitate achieving effective TMD systems without violating the ABM Treaty. The 2 km/sec buffer between theater and strategic ballistic missiles would be verifiable by national technical means (NTM), the only verification means for the Treaty.

Some have questioned the Clinton Administration's adoption of the "demonstrated" criterion for judging capabilities of ballistic missile defense systems. As I have just noted, the ABM Treaty is verified by NTM *alone*. While simulations or computer projections are useful for design engineers and program managers, the capabilities derived through use of these simulations cannot be verified by NTM. Thus, utilizing simulations or computer projections to determine system capabilities would result in a dual standard: the United States would tie its hands without the ability to verify the other Party's simulations of capabilities. The only verifiable means for determining the capabilities of a ballistic missile defense component or system is by demonstrated activities, such as testing in an ABM mode. No military commander will accept for operational use a system whose capabilities have not been demonstrated by actual flight testing. Adoption of the demonstrated approach—perhaps buttressed by confidence-building measures—is completely consistent with the intent of the Treaty and its verification. As you know, Mr. Chairman, the Senate has adopted a Congressional finding, now codified in law [sec. 234(a)(7) of P.L. 103–160], that states that the ABM Treaty does not apply to TMD systems unless such systems are "tested against or have demonstrated capabilities to counter modern strategic ballistic missiles."

The ABM Treaty was intended to be clarified and modified as changing threats and technologies dictated. The last significant clarification of the Treaty was by an Agreed Statement in 1978; this Agreed Statement also related to Article VI (a). During the Reagan and Bush Administrations, the Treaty languished. Intended as a living document, it is now badly in need of CPR (cardio-pulmonary resuscitation).

Mr. Chairman, the supporters of the ABM Treaty should not force the Clinton Administration and the Congress to make a choice between the Treaty and an effective TMD. Most responsible citizens would choose an effective TMD to protect the lives of U.S. men and women deployed overseas. Achieving effective TMD systems which could be deployed rapidly or shared with friends and allies could also be a deterrent to the proliferation of ballistic missiles and to their use. Forcing a choice between the Treaty and effective TMD is not necessary. The Clinton Administration has demonstrated that we can successfully meet both national security requirements.

The CHAIRMAN. Thank you very much, indeed.

Now, we turn to Dr. Lewis.

STATEMENT OF GEORGE N. LEWIS, RESEARCH FELLOW, DEFENSE AND ARMS CONTROL STUDIES PROGRAM, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Dr. LEWIS. Thank you, Mr. Chairman, and members of the committee very much for the opportunity to testify here today.

I am a researcher in the Defense and Arms Control Studies Program at the Massachusetts Institute of Technology. I received my Ph.D in physics from Cornell, and for the last 6 years have worked on technical aspects of arms control and international security issues at Cornell, Stanford, and MIT.

I think the administration's proposal has been well described by the previous speakers, although I would add that the 1972 John Foster statement also had an altitude limit. And that altitude limit will disappear completely under the administration's proposal. And I think that the altitude limit is as significant as the speed limit.

Today I want to focus on just one point, specifically on the administration's claim that the proposal they have made to the Russians is simply a clarification or a minor modification to the ABM Treaty, and that this will not erode the effectiveness of the Treaty's prohibition against deploying strategic defenses.

Now, it is important to note that the administration has not yet come forth with any public analysis to support this claim.

Together with my colleagues, Lisbeth Gronlund, Ted Postol, and David Wright, I have carried out and published a technical analysis of the implications of the administration's proposal.

That analysis is discussed in considerably more detail than I can go into here in my written statement, which I have submitted for the record to the committee.

Our analysis shows that the administration's claim that its proposal will not erode the ABM Treaty is incorrect. What we found is that, under the administration's proposal, both the United States and Russia would be legally free to test and deploy theater missile defense systems that could potentially have very significant strategic defense capabilities. Basically, the administration's proposal would allow the deployment of missile defenses that they claim would be very effective against theater missiles with ranges of up to 3,000 to 3,500 kilometers.

What our analysis shows is, that if the administration's assertions about the technical capabilities of these systems against theater missiles are correct, then these defenses could also be made to be very highly effective against strategic missiles.

Thus, the administration's proposal would make it permissible to deploy a nationwide strategic defense while remaining in compliance with the ABM Treaty.

As a result, the administration's proposal will not preserve the ABM Treaty. In fact, it will effectively eliminate the ABM Treaty as a mechanism for preventing the deployment of defenses against strategic missiles.

To briefly illustrate this, I ask you to look at figures one and two in my written testimony, which will be found following page 14.

Figure one shows our calculations of the defended footprints, that is the areas on the ground that could be protected by a THAAD-like theater missile defense system against a 3,000-kilometer range ballistic missile, and also against a 10,000-kilometer range strategic missile.

The solid curve you see, the one with the solid line, is the defended area against a 3,000-kilometer range theater missile, whereas the dashed line is the defended area against the strategic missile.

I think the point that Mr. Hildreth made earlier is exactly right, that the capability of these systems does not fall off catastrophically with increasing speed. Rather, it degrades gradually. And that is just what we found, as you can see.

The dashed footprint, the strategic footprint, is smaller than the theater footprint. It has also shifted somewhat in position, and, of course, you could shift it to compensate for that.

However, it is generally comparable in size with the strategic footprint, and that is what we found: That over a broad range of parameters, the defended area against a strategic missile is, although smaller, generally comparable with the area that could be protected against a theater missile.

You will note that we superimposed these footprints over the Washington, DC area, and both of them are large on the scale of the DC metropolitan area. Now, those are our calculations.

What I would like you to look at now is figure two. This shows three footprints for THAAD against a 3,000-kilometer range ballistic missile.

These are not footprints for different targets. It is the same target, with different assumptions on the defense system. These are also not our calculations. These are curves presented by General O'Neill of the Ballistic Missile Defense Organization in congressional testimony last year.

He originally presented them to illustrate how THAAD could protect Britain from missiles fired from North Africa, but for illustrative purposes, we have superimposed them over the central United States.

You will note we have also left the footprints we calculated superimposed over Washington. The very small size of these footprints, relative to the BMDO's footprints, indicates that, as we had intended, our calculations used very conservative parameters.

Now, if you look at the BMDO footprints, the inner one shows the defended area when the system's radar, here an AEGIS radar, which is similar in capability to the radar we were assuming, receives no assistance from outside sensors.

The middle curve shows the footprint when the radar receives cueing information from satellites, in this case, assumed to be a Brilliant Eyes satellite. This is basically information that narrows down the area that the radar has to search, and allows the incoming missile to be detected further away.

Now, as we saw in figure one, you would expect these curves to shrink somewhat against a strategic missile, but it is clear they are still going to be very large.

Perhaps more interestingly, the outer of the three, the larger of the three BMDO footprints, assumes that the THAAD interceptors are launched based only on trajectory information from the satellite.

Given that the administration's proposal would define THAAD as a theater missile defense, there would be no limitations on outside information it could receive. So it would be perfectly legal to provide it with guidance and launch information from other sensors.

In this case, as General O'Neill, in fact, noted in his testimony, the footprint will not shrink against a strategic missile.

In fact, because of the way the system is being operated, it might actually grow against the strategic missile. So this is a THAAD footprint from BMDO that will not shrink against the strategic missile. It will be at least that large, if not larger.

This is clearly the footprint of a strategic defense system. This footprint is almost exactly the same size as the footprints for the Safeguard/Sentinel system that the ABM Treaty foreclosed.

So it is very clear that a small number of such systems, comparable to the number of THAAD systems we are talking about buying, could provide coverage for the entire country.

Now, the point here is not whether or not the administration or the Russians currently intend to deploy defenses such as this or in such a manner.

The key point is that under the administration's proposal, all of this would be entirely legal and permissible. And, in fact, under the administration's proposal, you could deploy much more capable systems than those for which defended areas have been illustrated here.

Now, it may be that it will be possible to develop a set of limitations that will allow the testing and deployment of highly capable theater ballistic missile defense systems that are not capable against strategic missiles. But the administration's proposal, based only on a 5-kilometer-per-second testing limit on targets, will not do it.

For that matter, while the Russian additional proposal to add a 3-kilometer-per-second speed limit on the interceptor is an improvement, it will not do it either. You could still deploy very capable strategic defenses within that limit.

In fact, our analysis suggests that it may be quite difficult to find a set of limitations that would allow systems with capabilities such as the administration is seeking in THAAD without damaging the treaty.

It may be that it will ultimately be necessary to make some kind of a tradeoff between the allowed capabilities of theater missile defense systems, and the protections provided by the ABM Treaty. And it is essential that if we are forced into this situation that we make an informed decision.

I think it is essential that there be a full and open discussion of the effects of any proposed ABM Treaty modifications before any such changes are made to the ABM Treaty and before tests are conducted that would violate the treaty as currently written and interpreted.

Given the central importance of the ABM Treaty to U.S. security planning, the administration, and for that matter, others who claim that it is possible to deploy THAAD and other advanced ATBMs without significantly and adversely impacting the ABM Treaty need to present some analysis in support of the their position.

In particular, if there is some characteristic of theater missile defenses or some limitations that can be placed on them that would allow them to be effective against theater ballistic missiles, but not strategic missiles, they should be able to tell you what these limitations or characteristics are, and precisely how they affect the performance of the system against strategic missiles.

They should also be able to tell you how you could write legal limitations into the treaty that reflect these differences. The administration has not yet done any of this.

That concludes my prepared statement. And I would be happy to answer any questions. Thank you.

[The prepared statement of Dr. Lewis follows:]

Prepared Statement of George M. Lewis

The Compatibility of Highly Capable Theater Missile Defense Systems with the ABM Treaty

INTRODUCTION

Thank you very much for the opportunity to testify here today. I am a researcher in the Defense and Arms Control Studies Program at the Massachusetts Institute of Technology. I received my PhD in Physics from Cornell University in 1983. For the last six years, I have worked on technical aspects of arms control and international security issues at Cornell, Stanford, and MIT.

I will focus on the Administration's claim that the proposal they have made to Russia is simply a clarification or a minor modification of the ABM Treaty and will not erode the effectiveness of the Treaty.

I have, together with my colleagues Lisbeth Gronlund, Ted Postol, and David Wright, carried out a technical analysis of the implications of the Administration's proposal.

In short, our conclusions are:

- if the Administration's assertions that advanced theater ballistic missile defenses—such as THAAD—can be made highly effective against 3,000 to 3,500 kilometer-range theater missiles is correct, then our straightforward analysis indicates that these defenses would also be highly effective against strategic missiles;
- more generally, the Administration's proposed changes to the ABM Treaty would allow both the United States and Russia to test and deploy even more capable theater missile defense (TMD) systems with an unambiguous ABM capability, and would make it permissible to deploy a TMD system with a nationwide strategic defense capability while remaining in compliance with the ABM Treaty;
- as a result, the Administration's proposal would not preserve the original intent of the Treaty but would effectively eliminate the ABM Treaty as a mechanism for preventing the deployment of defenses against strategic missiles.

In contrast, the Administration has not presented any public analysis to support their claim that their proposal will not erode the ABM treaty. Our technical analysis indicates that this claim is almost certainly wrong.

I will also consider the degree to which it appears possible to develop a new proposal that would allow the deployment of highly capable theater missile defense systems without significantly weakening the ABM Treaty. Our analysis suggests that this may ultimately prove very difficult to do, and that the United States may therefore need to make some tradeoffs. In particular, the Administration may need to accept greater limitations on the capabilities of theater missile defense systems than it is currently proposing. Or the Administration may need to accept a weakening of, or even the elimination of, the ABM Treaty.

However, this choice should be an informed one. The United States cannot even begin to make this choice until it is clear the degree to which highly capable theater missile defenses and the current ABM Treaty are, or are not, compatible. That is the subject I will address here.

THE ADMINISTRATION'S PROPOSAL

The United States has recently proposed to Russia that the ABM Treaty be "clarified" to allow the deployment of more capable theater missile defense (TMD) systems. In making its proposal, the U.S. Administration has said it has two goals:

(1) to allow the development, testing and deployment of highly-capable TMD systems such as THAAD, and possibly of considerably more capable systems;

(2) to preserve the essence of the ABM Treaty.

In his appearance before this committee last month, John D. Holum, the Director of the Arms Control and Disarmament Agency, stated that: "President Clinton has reaffirmed our commitment to the Treaty. We consider it indispensable to stability, to the Start I and Start II reductions, and to longer-term strategic reduction opportunities."

The Administration has claimed that it is possible to achieve these two goals simultaneously and that its proposal to Russia will do so.

The Administration argues that the United States needs defenses capable of engaging theater ballistic missiles with ranges comparable to those of the CSS–2 missiles sold by China to Saudi Arabia. Such missiles have a range of roughly 3,000 to 3,500 kilometers. Missiles with such ranges would reenter the atmosphere at a speed of about 5 kilometers per second. In comparison, a strategic ballistic missile with a range of 10,000 km would have a reentry speed 40% higher—about 7 kilometers per second.

To maintain the ABM Treaty's prohibition on strategic defenses it is necessary to preserve a sufficient buffer or "firebreak" between the capability of such systems against incoming theater versus strategic targets.

To do this, the Administration has proposed that:

(1) a reentry speed of 5 kilometers per second be defined as the dividing line between strategic and theater ballistic missiles; and

(2) the ABM Treaty's prohibition on giving non-ABM systems a "capability" against strategic missiles be changed to a prohibition on "demonstrated capability."

Under this proposal, any defense would be Treaty compliant, regardless of its inherent capabilities, as long as it was never tested against a target with a reentry speed greater than 5 kilometers/second.

The Administration has argued that these changes are simply clarifications to the Treaty and would unambiguously preserve the Treaty's ability to restrict the deployment of strategic defenses.

ADMINISTRATION ARGUMENTS

While the Administration has not presented any public analysis to support its claim that its proposal would not erode the ABM Treaty, the Department of Defense has claimed that there are four technical reasons why one specific TMD system—the proposed THAAD TMD system—would have "doubtful" capabilities to intercept strategic missiles (see the testimony of General Malcolm R. O'Neill, then Acting Director of the BMDO, to the Military Acquisition and Research and Technology Subcommittees of the House Armed Services Committee on 10 June 1993). The four technical reasons are:

(1) given the high speed of strategic reentry vehicles, THAAD's sensors would not be able to detect them in time for THAAD to successfully intercept them;

(2) given the greater time they spend in space, strategic warheads cool to temperatures lower than theater warheads, and would be colder than the temperature THAAD is designed to detect;

(3) THAAD's divert thrusting system capability is insufficient to deal with the higher closing speeds involved in strategic intercepts;

(4) THAAD's computers and processors are incapable of dealing with the higher closing speeds involved in strategic intercepts.

The analysis presented below will clearly show that General O'Neill's first point is incorrect. A detailed assessment of his points (2) through (4) would require more information about THAAD than is now publicly available. However, these points are highly implausible, in part because they would result in a THAAD system that could not have the high capabilities against theater ballistic missiles that BMDO claims the system has.

In particular, *if* point (2) is correct, General O'Neill's statement provides an adversary with information that indicates how THAAD could be readily defeated by TBMs using quite simple countermeasures. To be specific, point (2) indicates that THAAD could be defeated simply by cooling a TBM warhead before launch and/or by enclosing it in a material that cools rapidly in space. This enclosure could be thermally isolated from the warhead by commercially available superinsulation, which is used in low-temperature physical applications and for thermal control of satellites.

However, the more fundamental issue being considered here today is that the modified ABM Treaty would *not* prevent THAAD or any other advanced TMD system from having a strategic capability. Even if General O'Neill's claims were correct, they simply outline a set of straightforward upgrades to THAAD that would give the system a strategic capability. None of these upgrades would be prohibited by the ABM Treaty under the Administration's proposed changes. There is nothing in the Administration's proposal to prevent the United States or Russia from designing, testing, and deploying a TMD system that is fully strategic-capable.

FUNCTIONS OF AN EFFECTIVE MISSILE DEFENSE SYSTEM

In this section, I discuss some of the functions that ballistic missile defenses must perform to intercept missiles. The ability of these systems to perform these functions has direct and profound effects on their performance capabilities. While this description is for a highly capable theater missile defense system, it applies equally well to a strategic defense system. The fundamental similarities between the two types of missile defense systems highlights the difficult problem of trying to permit one of them while banning the other.

First, the system must detect and track the incoming warheads with its radar. In doing this, it will certainly be aided by warning, launch point information, and possibly trajectory data from U.S. early warning satellites.

Second, the system must be able to deal with the countermeasures that an adversary could employ to defeat the defense and the natural variability of the targets that will be encountered. The ability of the defense system to deal with countermeasures and target variability is almost certainly the single most important factor in determining how effective the defense system will be. Rather simple countermeasures can be highly effective, as is well illustrated by the Gulf War experience. In the Gulf War, the unplanned and purely inadvertent breakup of the Iraqi Scuds resulted in a target described by the manufacturer of Patriot as a "high-speed, low radar-cross-section maneuvering reentry vehicle (RV), accompanied by decoys." A wide range of countermeasures would certainly be well within the capabilities of countries capable of building 3 ,000 km range theater ballistic missiles.

Finally, any credible missile defense system will need to have the ability to deal with massed missile attacks. The value of concentrating fire on a target to overwhelm defenses is a well and widely understood principle. Iraq attempted to take advantage of this principle by launching multiple-Scud missile attacks on several occasions during the Gulf War. The North Korean ballistic missile force, which may have as many as 1000 missiles, should surely be able to launch massed missile attacks of considerable size.

ESTABLISHING A BUFFER BETWEEN THEATER AND STRATEGIC DEFENSE SYSTEMS

To establish a clear firebreak between TMD and ABM capabilities, one must identify the parameters that can be used to establish the distinction between theater and strategic defense systems. If such a distinction exists, it must be possible to identify and analyze the parameter or set of parameters that makes this distinction possible.

I will discuss several parameters and approaches that could be used to make a distinction between theater and strategic defenses, beginning with the approach proposed by the U.S. Administration—a speed limit on the target. I will then discuss and assess some of the other possible parameters that might be used in attempting to draw a meaningful distinction between TMD and ABM systems. I will show that none of these approaches appear likely to allow the deployment of TMD systems with capabilities similar to those being sought by the Administration without also having a serious adverse impact on the ABM Treaty.

A Speed Limit on the Target.—There is a direct relationship between the speed of an incoming target and the range of the missile that delivers it. Regardless of how sophisticated a missile might be, if flown on a standard trajectory to its maximum range, a 3,000–3,500 kilometer-range ballistic missile will reenter the atmosphere at roughly 5 kilometers per second and a 10,000 kilometer-range missile will reenter at roughly 7 kilometers per second.

The Administration's proposal to Russia attempts to define the difference between TMD and ABM systems in. terms of only a single parameter—the speed of the incoming target against which the system can be tested—with the dividing line set at 5 kilometers per second. However, this speed is far too high to serve, in isolation, as a meaningful barrier between TMD and ABM systems.

To show this, we have assessed the relative capabilities of a given defense system against targets with different reentry speeds. Since the target speed is the *only* characteristic of the incoming missile the United States proposes to control, we have carried out an analysis of the capability of a THAAD-like missile defense system against two targets that vary only in their reentry speed.

There are two primary effects that a variation in target reentry speed could have on a defense system: (a) it will affect the size of the ground area that can be protected, known as the defense system's footprint, and (b) by leading to higher closing speeds during the endgame of the intercept attempt, it could affect the single-shot probability of kill for the system.

Our analysis shows that if a THAAD-like TMD system is able to defend a large area—for example, roughly 100 kilometers or more across—against a theater target reentering at 5 kilometers per second, then it will also be able to defend a large area against a strategic missile reentering at 7 kilometers per second. The area defended against the strategic target will generally be somewhat smaller than against the theater target, but will still be larger than a typical city's metropolitan area.

This conclusion holds over a wide range of assumptions for the values of key parameters, including the radar's power-aperture product, the target radar cross section, the speed of the interceptor, and the cueing information available to the defense. As the values of these key parameters are changed, the absolute sizes of defended footprints change, but the relative size of the theater and strategic footprints tends to remain roughly the same. The key point is that with all else equal, a system that can give large defended footprints against 3,500 kilometer-range theater missiles will also give large defended footprints against 10,000 kilometer-range strategic missiles.

The size of the defended footprint is a central parameter in assessing the capability of a missile defense system, and footprints are widely used in such assessments. However, the use of footprints to characterize the capabilities of a defense system can be highly misleading since the size of a footprint is strongly dependent on the assumptions used to calculate it. Presenting a footprint without specifying these assumptions is equivalent to presenting a graph without labeling its axes. Thus when using footprints in analyzing the capability of a defense system it is essential that all of the key parameters—such as target speed, target radar cross section, number of targets, interceptor acceleration and burnout speed, the interceptor's minimum intercept altitude, the radar's power-aperture product, and the radar's required search area—be clearly stated. When accompanied by a full explanation of the assumptions used in the calculations, footprints are very useful for assessing the relative capability of a defense system against different classes of targets and for different operational conditions. This is the approach we have taken.

Figure 1 shows one set of the defended footprints that we have calculated, superimposed over the Washington DC area. This figure shows the coverage of a THAAD-like system with an interceptor burnout speed of 2.6 kilometers per second against both a 3,500 kilometer-range theater missile and a 10,000 kilometer-range strategic missile. This calculation assumes a radar power aperture product of 500,000 watt-meter squared, a target radar cross-section of 0.05 square-meters, a minimum intercept altitude of 40 kilometers, a five-second delay between detecting the target and launching the interceptor, and the availability of cueing information on the launch point of the target. Although the strategic footprint is smaller than (and shifted in position relative to) the theater one, the strategic footprint is still large compared with the size of the Washington metropolitan area.

Figure 2 is a larger scale map showing the same two footprints superimposed over Washington DC as well as three additional footprints. These three footprints are official BMDO footprints, from the testimony of General Malcolm R. O'Neill to the Department of Defense Subcommittee of the House Appropriations Committee on April 28, 1993. These footprints assume a THAAD interceptor with a maximum speed of 2.7 kilometers per second (slightly higher than the 2.6 kilometers per second speed we used to calculate our footprints), defending against a 3,000 kilometer-range missile. The radar is assumed to be the Navy's AEGIS radar, which is roughly comparable to or even smaller than the radar assumed in our calculation. These footprints were originally calculated to illustrate THAAD's ability to protect Britain from a missile attack originating in North Africa. However, for the purpose of comparison, we have superimposed them over the central United States. The original figure presented by General O'Neill is included as Figure 3.

The inner of the three BMDO footprints assumes that the incoming missile is engaged by the defense without the assistance of any outside cueing information. Note that this footprint is much larger than our footprints, even though our footprints do assume that cueing information is available from DSP satellites. Although many of the parameters used by BMDO in generating this footprint are not known to us, the large size of the inner BMDO footprint confirms that the parameters we have chosen for our footprint calculation are quite conservative.

The middle of the three BMDO footprints assumes that cueing information is available from Brilliant Eyes satellites, but that the radar must still detect and track the incoming target before interceptors can be launched. Although, as discussed above, this footprint will be somewhat smaller against a strategic missile, it is apparent that the defended footprint will still be very large.

The outer of the three BMDO footprints assumes that the THAAD interceptor can be launched on the basis of information from Brilliant Eyes satellites. Since the Administration's proposal would define THAAD as a theater missile defense system, there would be no Treaty limitations on the information from external sensors, such as Brilliant Eyes, that it could use. The resulting footprint is clearly the footprint of a strategic defense system—it is comparable in size to the footprints of the Safeguard/Sentinel systems that were foreclosed by the ABM Treaty. Moreover, this footprint will not shrink against strategic missiles. As General O'Neill pointed out in his testimony, because greater intercept flight time is available against longer range missiles, this outer footprint will actually grow in size as the range of the attacking missile increases.

These BMDO footprints not only make clear that our footprint calculations are based on quite conservative assumptions, but they also make it very clear that the Administration's proposed treaty change will allow the deployment of missile defense systems with very significant strategic capabilities.

The other main effect of the target reentry speed on a TMD system's effectiveness is on the kill probability for an intercept attempt. THAAD and other advanced TMD systems are designed to be able to make their intercepts above or in the upper layers of the atmosphere, and in this situation the important parameter determining the kill probability is the relative speed between the target and interceptor (the "closing speed"), rather than the absolute speeds of the target and interceptor.

However, the higher closing speeds for a strategic target would not present a serious problem for a hit-to-kill interceptor such as that used by THAAD. A 10,000 kilometer-range strategic target will have a reentry speed about 40% greater than that of a 3,000 to 3,500 kilometer-range theater target. For the THAAD interceptor, this difference in reentry speed translates into roughly a 25–30% difference in closing speed. If uncompensated for, this difference in closing speeds would be expected to lead to a somewhat lower single-shot kill probability against the strategic target. However, unless the capability of the interceptor against the theater target was already marginal to begin with, the kill probability would be expected to degrade gradually as the target speed increases, and a 25–30% difference in closing speed is small enough that you would expect to retain a significant kill probability against a strategic target.

Moreover, the real issue here is not whether THAAD would retain a significant kill probability at somewhat higher closing speeds, but whether the Administration's proposed changes would allow a theater defense system to include interceptors that would unambiguously have a high kill probability against strategic missiles. A defense system restricted only by a testing limit of 5 kilometers per second on the target speed could be designed so that its kill probability would not degrade at strategic closing speeds, since the interceptor could easily be overdesigned to maintain its kill probability at higher closing speeds. There is nothing in the ABM Treaty—or in the Administration's recent proposals—to prevent such an overdesign, and in any event, any such prohibition would be very difficult to verify. If, as General O'Neill's written response seems to indicate, the Administration is counting on the difference in closing speeds between theater and strategic engagements to prevent TMD systems from intercepting strategic targets, it is essential that it come forth with Treaty restrictions that can ensure that this will actually be the case.

In the absence of limits on the closing speeds in tests (or an equivalent limit on the maximum interceptor speed), an exo-atmospheric theater missile *interceptor* could in fact be tested at full strategic closing speeds simply by boosting the interceptor to a higher speed. This would not be prohibited by the Administration's proposal, although the Russian proposal to limit the interceptor speed would in effect prevent such testing.

For intercepts occurring in the atmosphere, the speeds of both the target and interceptor are significant, since the maneuvering capability of the target and interceptor will strongly depend on their speeds. When the Senate ratified the ABM Treaty in 1972, it did so with the understanding that the Administration would regard any defense system that was tested above an altitude of 40 kilometers or against a target reentering at faster than 2 kilometers per second as being a strategic defense. This 40 kilometers altitude limit was important because it forced tactical and theater defenses to operate within the atmosphere, where the absolute speeds of the interceptor and target have much greater significance. This altitude limit is also abandoned by the Administration's current proposal.

Finally, it has been reported that Russia is interested in equipping its theater missile interceptors with nuclear warheads. The somewhat higher closing speeds against strategic targets will be of little consequence to a nuclear-armed interceptor. There is no prohibition against nuclear-armed interceptors in either the ABM Treaty or the U.S. proposal.

We conclude that the difference between target reentry speeds of 5 and 7 kilometers per second is not, by itself, sufficient to provide a meaningful barrier between theater and strategic defenses. To the best of our knowledge, the Administration has not presented any analysis to support their assertion that this difference in reentry speeds is sufficient to preserve the intent of the ABM Treaty.

OTHER POSSIBLE MEASURES OR APPROACHES FOR PROVIDING A BARRIER BETWEEN TMD AND ABM SYSTEMS

We consider below other characteristics, or combinations of characteristics, of missile defenses and their targets that might provide a basis for distinguishing between TMD and ABM systems.

Interceptor speed.—One possible approach is to limit the maximum speed—the burnout speed—of a TMD system's interceptor missiles. Russia has reportedly proposed a limit of 3 kilometers per second on the burnout speed of a TMD system's interceptors, but this proposal has been rejected by the United States.

The primary effect of a restriction on interceptor speed would be to limit the size of a defense system's footprint by limiting the distance that the interceptor could fly in the time available (although the footprint size could be regained by varying other system parameters if these are not also controlled). However, Figure 1 shows that even our assumed THAAD-like interceptor, with a burnout speed of only 2.6 kilometer per second, is sufficiently fast to provide significant coverage against strategic targets. Thus if interceptor speed is to be the basis for discriminating between theater and strategic missile defense systems, the interceptor speed limit will have to be well below 3 kilometers per second if TMD systems are to be prevented from having significant strategic capabilities.

Geographical Deployment Limitations.—Another possible approach to limiting the impact of allowed TMD deployments on the ABM Treaty is to place limits on the geographical deployments of advanced theater missile defense systems.

For example, one could attempt to prevent TMD systems from being used as strategic defenses by banning their deployment on all or part of the territories of the United States and Russia. However, while such an approach might be acceptable to the United States, whose territory is not directly threatened by theater missiles, it is unlikely to be acceptable to Russia, which has a number of missile-possessing countries on or near its border.

More importantly, however, given the high mobility of planned TMD systems such as THAAD, such a limit would have little practical utility since the time required to break out of such a limit would be very short. Even though THAAD or more advanced TMD systems might not be developed with the intent of using them to protect U.S. (or Russian) cities, they could easily be redeployed to do so if a nuclear attack appeared to be a real and imminent possibility, and this possibility would undoubtedly be considered by Russian (or U.S.) military planners.

Numerical Deployment Limits.—Another possible approach would be to limit the total number of TMD components that either side could deploy to insure that a strategic attack could overwhelm the defense system. Alternatively, or in addition, the ability of a defense system to engage multiple simultaneous targets could be limited so that any individual defense battery could be overwhelmed. At present there are no such limits on TMD systems, and it is unclear if such approaches are practical given the current and potential future sizes of theater ballistic missile arsenals. For example, North Korea may deploy as many as 1,000 theater ballistic missiles—more than the number of strategic missiles deployed by France, Britain, or China.

For the sake of simplicity, the footprint analysis discussed above has focused on the case of one incoming missile. This is a reasonable starting point for assessing the capability of a defense system against different types of targets; however, in real life simultaneous attacks by multiple missiles must be expected. For example, the Patriot system is designed to engage several missile targets simultaneously. Presumably a more advanced system such as THAAD will be designed to simultaneously engage a considerably larger number of simultaneous targets.

In general, as the number of nearly simultaneous missiles attacking an area defended by a single defense battery is increased, the defended perimeter will shrink because the radar detection range will decrease as the radar's search requirements increase. However, the size of the defended area will shrink in a similar way for both theater and strategic attacking missiles. As the number of attacking missiles is further increased, eventually a point will be reached at which the system will be saturated and some of the attacking missiles will not be engaged.

At current force levels, one might expect that a strategic defense system would be designed to handle simultaneously a larger number of targets than a theater missile defense system, but there is no reason in principle why this must be so. If one wishes to argue that a highly-capable TMD system is not capable of defending against strategic missiles because the scale of a strategic attack would be greater than that of a theater attack, then it is essential that Treaty provisions be added to make sure that permitted TMD systems cannot be given the capacity to deal with large scale attacks.

The capacity of a defense system to deal with multiple targets could be limited by restricting the system's software or computing power, limiting the power-aperture-product of its radar, or limiting the number of radars or missile launchers permitted. However, to have any significance, such numerical limits on radars or launchers would probably require limiting TMD procurement to levels well below those currently planned.

While such approaches might be able to somewhat limit the strategic capabilities of advanced TMD systems, they would not preserve the original intent of the ABM Treaty. The ABM Treaty does not permit strategic defenses to be developed and deployed as long as they can be overwhelmed by a determined attack. Indeed, one of the main purposes of the Treaty was to remove the need to maintain large nuclear forces for the purposes of overwhelming defenses. The Administration has stated that it views the ABM Treaty as essential to making further reductions in strategic forces beyond START II levels. Even if it is possible to add numerical limits to the Treaty so that the nuclear deterrent of both the United States and Russia is preserved at current or even START II force levels, the presence of strategic-capable defenses would clearly complicate further reductions. Thus, the resulting situation would be far different than that under the current ABM Treaty, where defenses present essentially no barrier to deep cuts in strategic arsenals.

Sophistication of the Attacking Missiles and Countermeasures.—Yet another possibility is that advanced TMD systems might have a very limited ABM capability because strategic missiles are in some way more technologically advanced than the theater missiles the TMD system was designed to counter, or deploy superior countermeasures. Thus one might consider placing ABM Treaty limitations on TMD systems that exploit this difference; for example, one might attempt to limit the ability of TMD systems to deal with decoys or low radar cross section reentry vehicles.

However, an attempt to build a meaningful ABM Treaty distinction between theater and strategic defenses using this approach would run into very serious definitional and operational problems. Just as significantly, there are good reasons for believing that such an approach is not technically viable. Simply because one type of missile has a longer range than another does not mean that is a more sophisticated missile. For example, the first U.S. or Soviet ICBMs would not be considered to be more advanced or sophisticated than the U.S. Army's 100 km range ATACMS tactical missile or its now-eliminated Pershing II theater missile. Just as importantly, any lack of deliberate countermeasures in current theater ballistic missiles does not indicate that this will continue in the future. Until now, there has been little reason for manufacturers of theater ballistic missiles to design countermeasures into their missiles. This will certainly change if more advanced missile defenses are developed and deployed.

There is a wide range of potentially very effective countermeasures that a country capable of building a 3,000 kilometer-range missile should have little difficulty implementing. One of the potentially most important countermeasures would be to reduce the radar cross section of the reentry vehicle, thereby reducing the detection range of the defense system's radar. Building a low radar cross section reentry-vehicle (RV) for a theater missile is not like attempting to build a stealth bomber. The basic principles involved in reducing the radar cross section of a simple geometrical shape such a conical reentry vehicle—sharpening the nose, rounding the back edge, and coating with radar absorbing material—are well understood and straightforward to implement. Although the sharp nose and radar absorbing material will be stripped off once the RV enters the atmosphere, by then they will have already accomplished their objective.

If theater missile defenses are to be effective, they must be able to deal with a wide range of potentially very effective countermeasures. Given the great cost of the THAAD and other advanced TMD systems, it is reasonable to expect that their designers will exert great efforts to make the systems resistant to possible countermeasures. It is highly implausible that the ABM Treaty could define a class of countermeasures that would allow U.S. and Russian reentry vehicles to defeat defense systems but that could not also be employed on theater missiles of other countries. Far more likely, the existence of a such a class of countermeasures will indicate that the system can be defeated by both theater and strategic RVs.

Uncertainty Due to Testing Limitations.—The argument has been made that the 5 kilometer per second limit on the reentry speed of tested targets will prevent theater defenses from being used against strategic missiles because military commanders would not accept for operational use a system that had not been tested against the actual targets they would have to engage. This argument is clearly contradicted by our only experience with ballistic missile defenses, when in the Gulf War Patriot was used against Iraqi missiles that had much greater ranges and speeds than Patriot was designed to deal with or had ever tested against. In fact the 40% difference in reentry speed between the 600 km range Iraqi missiles, and the 300 km range Scuds Patriot was designed to deal with is the same as the difference in reentry speed between the 3,500 km range theater ballistic missile and a 10,000 km range strategic missiles we are discussing here. Patriot was used because it was the only defense system available. If, in the future, there appears to be a real danger of nuclear missile attack on the United States, and TMD systems exist that might be able to provide some degree of protection for major U.S. cities, then it is quite possible, even likely, that these TMD systems will be used for this purpose. Certainly in planning their future nuclear forces, Russia would almost certainly factor in the possibility that TMD systems would be used in this way, as would U.S. planners facing capable Russian TMD systems. This is precisely the type of situation the ABM Treaty was intended to prevent.

CONCLUSIONS

The central questions considered here are whether it would be possible to allow the deployment of highly-capable TMD systems without significantly eroding the original intent of the ABM Treaty, and how this might be done.

The U.S. Administration has made a proposal to Russia that it claims will do this. However, it has not presented any public analysis to support this claim. We have conducted and presented an independent analysis of the Administration's proposal that reaches a set of conclusions that starkly contradict the claims of the Administration. These conclusions are:

- The U.S. Administration's currently proposed approach—based only on the 40% difference in reentry speeds between strategic and theater missiles—will *not* preserve the original intent of the ABM Treaty.
- If it proves to be technically feasible to develop and deploy highly capable and effective TMD systems, then the Administration's proposal would allow these systems to have significant capabilities against strategic missiles as well.
- Russia has made an additional proposal, to add a limit of 3 kilometers per second on the maximum interceptor speed. This interceptor-speed limit is too high to prevent TMD systems from having significant capabilities against strategic missiles.
- Our analysis indicates that it is very unlikely that there is a clear and enforceable combination of restrictions that would provide a meaningful "firebreak" between highly capable theater defenses and strategic defense systems.
- Our analysis indicates that the required restrictions on theater defenses would have to be so stringent that they would prohibit both the testing and deployment of THAAD and other similar or more capable defense systems.
- Our analysis strongly suggests that it may not be possible to deploy highly capable TMD systems without also eroding the effectiveness of the ABM Treaty.
- If so, the United States will therefore have to choose between deploying highly capable TMD systems or to continue reliance on the ABM Treaty as a means of limiting deployments of strategic defenses. The options to deploy highly capable TMD systems and to preserve the ABM Treaty appear to be incompatible with each other.

It is widely believed that the ABM Treaty is of central importance to U.S. security planning, and the Administration has stated that it concurs in this belief. The Administration and others who claim that it is possible to deploy THAAD and other advanced TMD systems without significantly impacting the ABM Treaty need to present analysis in support of their position. In particular, if there are characteristics of or potential limits on TMD systems that would allow them to be effective against 3,500 kilometer-range theater missiles but not against strategic missiles, these characteristics or limits need to be clearly identified, and an analysis should be presented to show how a set of legal and enforceable limitations that reflect these constraints could be incorporated into the ABM Treaty. In addition, there needs to be a full and open discussion of the effects of any proposed ABM Treaty modifications before any such changes are made and before any tests are conducted that would violate the Treaty as currently written and interpreted.

Ballistic Missile Defense ‘Footprints’ Against Theater and Strategic Threats

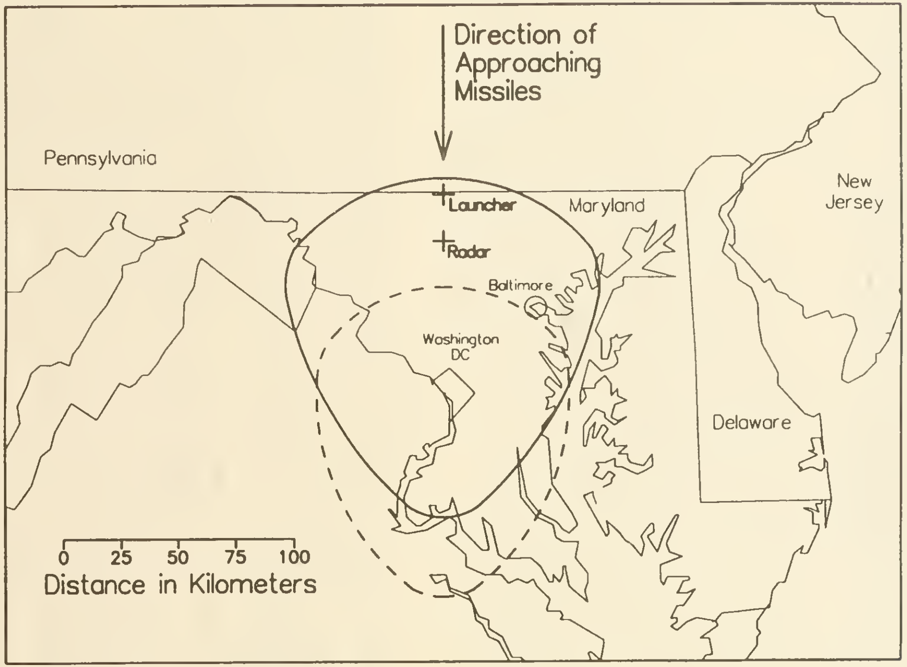


Figure 1

This figure shows the defended perimeters we calculated for a THAAD-like anti-tactical ballistic missile (ATBM) against a 3,000 kilometer range theater missile (solid line) and a 10,000 kilometer range strategic missile (dashed line). The footprints in this model assume the ATBM radar has a power-aperture product of 500,000 watt-meters squared and that the attacking reentry vehicles (coming from the top of the figure) have a radar cross section of 0.05 square meters

BMDO Footprints for THAAD Against a 3,000 Kilometer Range Missile

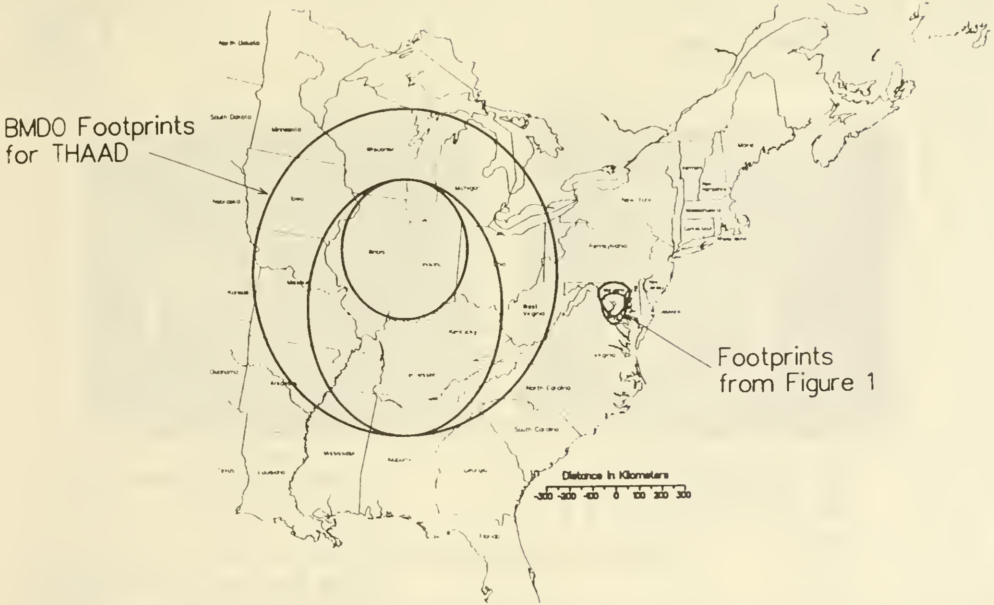


Figure 2

This figure shows BMDO footprints for THAAD with an interceptor burnout speed of 2.7 kilometers per second and using an Aegis radar The inner curve assumes the radar detects the approaching missile without the assistance of external sensors The middle curve assumes cueing information from Brilliant Eyes The outer curve assumes THAAD interceptors are launched using trajectory data from Brilliant Eyes For comparison, our footprints from figure 1 remain superimposed over Washington, D.C.

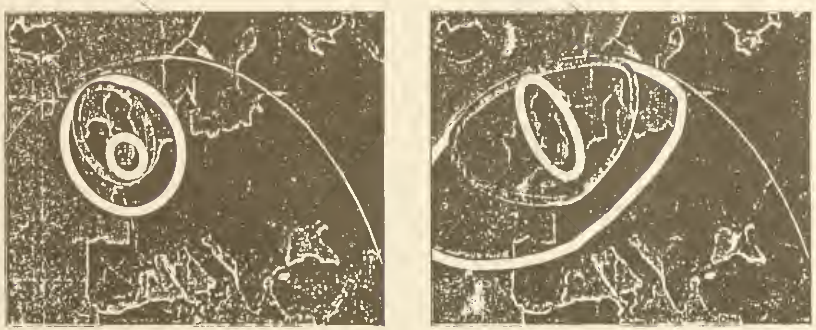
BALLISTIC
MISSILE
DEFENSE
ORGANIZATION

BRILLIANT EYES MAXIMIZES MISSILE PERFORMANCE

- Defended Area Becomes Dependent On Defense Interceptor Performance
  - Increases Defended Area
  - Enables Defense From Greater Standoff Ranges

2.7 km / sec THAAD
Maximum Threatened Radius
3,000 km TBM

4.5 km / sec Interceptor
Maximum Threatened Radius
3,000 km TBM



Defended
Area
Footprints

Radar Commit
Cued Radar Commit
BE Commit
First Shot Opportunity Contours

Figure 3

The CHAIRMAN. Thank you very much.

First, am I correct in assuming that each one of you are here in your independent capacity?

Dr. GRAYBEAL. I do work on contracts for the Government, but I am speaking today solely as an individual, and none of my comments should be attributed to any government agency or to the company that I am currently working with, Science Applications International Corp.

I am speaking strictly as an individual. I have written extensively as an individual. Separately, I do perform contract work for the government.

The CHAIRMAN. Thank you.

Mr. RHINELANDER. Mr. Chairman, I will say that I am here as an individual. I am not doing any work in the field in my private capacity.

Mr. KEENY. I am speaking strictly as an individual.

Dr. LEWIS. I am also speaking as an individual.

The CHAIRMAN. Good. Thank you very much.

I was intrigued with Dr. Graybeal's idea of being able to do both, to move ahead with the reinterpretation of the treaty and, at the same time, in no way to affect it. Would you explain just more specifically how would you do both?

Dr. GRAYBEAL. I believe, sir, that is what the Clinton administration is doing by recognizing that changes have taken place in the world since 1972, specifically, the change in the threat that we must face, and that it is necessary to clarify, or modify, or amend the treaty—I leave that to legal advisors and the Senate how you do this. It is necessary to update this treaty to provide the mechanism for an effective theater missile defense.

In my personal view, an effective theater missile defense can be achieved by what the BMDO Office calls their core TMD system—specifically was described to you this morning—includes the AEGIS system, it includes the THAAD, it does not include the upper-tier Navy system, and it does not include boost phase intercept systems.

It does not include systems in the future technology area. The U.S. is shooting for getting an effective theater missile defense, which if we made the decision today, will not be able to be deployed until 2001.

And you can do this completely consistent with the ABM Treaty by adopting the approach the Clinton administration has taken. The treaty deals with capabilities, as John Rhinelander mentioned, but the criteria for determining those capabilities must be demonstrated, something that can be verified by national technical means.

The Clinton administration has adopted demonstrative criteria. So has the Senate. It is now the law. Therefore, by having the testing requirement to determine this capability, you have something that is verifiable.

I would remind my colleague, Dr. Lewis, that simulations, which I think are very useful for program managers, are used for analysis. They have done an excellent job in their report.

But such simulations for capabilities are not verifiable by national technical means. As a point of history, during the ABM Treaty negotiations, Dick Latter, on the delegation, did an analysis of the then Soviet SA–5, surface-to-air missile, with a nuclear warhead, which would be alerted by data from the Soviet Large-Phase Air Radars, LPAR. He pointed out that you could have a point in space capability, which would be fairly significant, in terms of strategic missiles. This was recognized.

The way we tried to handle that was to write in very stringent testing limitations to challenge the Soviets on certain testing. As has been pointed out, when they tested the SA–5 radar against the ballistic missiles coming into sary shagan, this activity was challenged.

So my point, sir, is that the Clinton administration's approach permits getting an effective theater missile defense, with both Russia and the United States recognizing that it is required against missiles up to 3,000 to 3,500 kilometers.

You can do this with the demonstrated criteria, and you do not undermine the ABM Treaty, because current strategic ballistic missiles have velocities above 7 kilometers per second. These are the type of missiles you are not going to be permitted to test against. And I do not believe that any country is going to place its security on a system that has never been tested in a mode in which it is actually asked to perform in time of hostility.

The CHAIRMAN. I notice the references to the Clinton administration. Actually, wasn't it the Reagan and Bush administration which first wanted to change the treaty?

Dr. GRAYBEAL. The Reagan and Bush administration wanted to change the treaty by what is known as the broad interpretation, which I believe would have completely eviscerated the treaty and permitted the full SDI program.

This current change, or clarification—whether it ends up as a change or a clarification, I will leave it to others—is not one which will eviscerate the treaty in the manner that the broad interpretation would have done.

The proposals that the Bush and Reagan administration put on the table in the Standing Consultative Committee would have really wiped out the treaty as a viable document.

The CHAIRMAN. Mr. Rhinelander, would you agree with the interpretations that Dr. Graybeal has made as to what happened at the ABM negotiations?

Mr. RHINELANDER. I am not sure I was there when that discussion took place, but I do not disagree with him at all. I think it is fair to say that any defensive system has some theoretical capability, and the question is how much is it before you cross the line.

Sid mentioned the Foster Box and the fact that it has never been unclassified, which I believe is correct. I would point out to the committee, though, that on August 8, 1972, Senator Proxmire put into the Congressional Record an exchange of correspondence between him and the Defense Department.

And I think this clearly meets the shared understanding concept which the Senate articulated during the INF Treaty debate as the basis for interpreting a treaty.

There is no doubt in my mind that while the Foster Box itself has remained classified, you have in the public record, between the Executive and the Senate, an understanding that the 2 kilometers per second was going to be the basis upon which the two branches of government worked.

Now, I agree with Sid that the ABM Treaty has to be reviewed and updated. Where we disagree is how that should be done. I agree with him that we should not have an either/or situation, and that all ATBMs should not be banned. That was not the concept for which we came before the Senate in 1972. It should not be now.

I think the real issue gets to be, and I will defer to others on the substance of that, the nature of the threat and what we should do to counter it.

If you say the threat is basically in the 1,000 kilometers and below offensive threat, the Scud and the Scud-upgraded type, then you have things like the Patriot III, which are more than satisfactory to meet it. My guess is that everybody at the table would agree that ATBMs against that type of threat ought to be allowed.

And I would tell you I think we ought to define quantitatively where we are, wherever we are, because we have not done that in 22 years, and I think we ought to do it now.

The disagreement between us comes in terms of whether you ought to go further. I think what the Clinton administration has proposed was really a program initiated in the Reagan years.

The THAAD program was one which came from those times. It did not get the publicity that some of the aspects of the SDI programs then got, but it was part and parcel of it.

If you go forward with just what the administration has proposed, with no collateral constraints in addition to what they proposed, you really blow a very large hole in the ABM Treaty. Then you have to form the judgment, is that what you want to do at this point in time. My bottomline is, no, I would not want to do it. But that I think is a policy call and the difference between us.

The CHAIRMAN. I think Mr. Keeny wanted to be recognized.

Mr. KEENY. I believe that the Clinton proposal, based on the single criterion of 5 kilometers per second, would radically undercut the ABM Treaty. I do not know whether it would eviscerate the treaty, but it would be a pretty weak version of the originally intended document.

In one way, the proposal would go beyond the broad interpretation, because it would permit not only the testing of all kinds of systems that are otherwise prohibited by the ABM Treaty, but also their deployment and unlimited quantities, not only within the territory of the two countries, but anywhere in the world.

So I would offer that one could argue that this proposed modification has implications that go just as far as the broad interpretation. And I have seen no sign that there has been a serious critical assessment of just what this would do to the ABM Treaty, but more importantly, to our broader security interests looking into the future.

The CHAIRMAN. Thank you very much. I will desist and turn it over to Senator Biden.

Senator BIDEN. Thank you, Mr. Chairman.

Gentlemen, if the Russians were to develop and deploy systems similar to the ones now under development, our theater missile program, would you recommend that we fulfill our obligations under START I and START II? Dr. Graybeal.

Dr. GRAYBEAL. Yes, Senator, I do. As I pointed out, the remaining forces are why I maintain that the ABM Treaty is still valid for strategic stability between Russia and the United States. Russia will be the only nation of the FSU with strategic ballistic missiles. The numbers we are dealing with here are still in the order of 3,000, roughly the same as they were in 1972.

Deploying a theater missile defense system similar to what this would permit, mainly a system tested against missiles of 5-kilometers-per-second in Russia, is not going to deny the U.S. the deterrent capability of its strategic forces, which is exists today, and will exist even if that system is deployed inside the Soviet Union.

Senator BIDEN. I understand they are different. I just wanted to know whether you would have any reluctant—would it permit us—and I would like each of you to answer both these questions. Would it permit us to go to a START III, where we move down below 1,000 strategic weapons on each side?

Dr. GRAYBEAL. I do not have an answer to that question. I have felt that strategic stability between Russia and the United States can get down to 1,000 or below. I also feel quite strongly that when you get into these levels you have to bring the other nuclear powers into the negotiations.

Senator BIDEN. I understand that, but what I want—let us assume for the sake of discussion that there is only one other nuclear power, which obviously there is not, Russia.

Let us assume that were the case, that Russia—we were to allow—we either ratified and/or the administration insisted that it need not be ratified, and I and others did not have the votes to force the issue.

And the end result is that THAAD is developed along the lines, as proposed, and the Russians were to develop a similar system.

There are a lot of ifs there. They do not have the money to do that now, which is one of the reasons why some of you are so sanguine about this, I expect. But let us assume they did.

Would we be able to go down to 1,000 or below in a START agreement, with the knowledge that the Russians would have the capacity to develop a THAAD system, a THAAD-like system, with a 5-kilometer limit?

Would we feel secure? Would you as an expert recommend to our government that we could sign a START III agreement, limiting it to 1,000 on each side?

Dr. GRAYBEAL. Without having done the analysis I do not think I can answer your questions directly, Senator, because there are so many variables here, namely, what would be the Soviet system, is it our THAAD system: is it a hit-to-kill system, the technology are involved, the capabilities, the closure rate, does it have a nuclear warhead.

Senator BIDEN. I guess the question I had was: Assuming that the treaty were modified in whatever way, formally amended or otherwise, to permit what the administration is seeking—just so you know where I am coming from on this, to be very blunt about it, I have no doubt, from a constitutional standpoint, that this is an amendment, none, zero, not even—it is not even a small question in my mind.

But on the second issue I do have doubt. I am not sure whether or not it warrants it. My inclination is that it may warrant the need for an amendment, from a policy standpoint.

But my question there becomes: If it is amended to accommodate the change the administration wants, does that then fly in the face of what I believe to be a desirable policy goal for us, and that is to have a total limitation of strategic systems that reside within the former Soviet Union, obviously separate countries now, that does not exceed 1,000 strategic nuclear weapons. And that is, I think, a legitimate and a desirable policy objective.

The thing that I do not understand, in my doubts about the policy of amending this ABM Treaty, is, would, as a practical matter, the existence of technologies allowed under the amended ABM make it imprudent for us or impossible for us and the other parties to agree to limitations of strategic systems of 1,000 or less.

Dr. GRAYBEAL. I think that is a very good question. And I was trying to complete two additional points: One, the degree to which we could inhibit their testing of this system, and what confidence they would have that that system would play: two, a much more significant factor, which Dr. Lewis's calculation does not take into account—if you take this "THAAD-like system" in Russia and put a nuclear warhead on the front of it, those footprints change significantly for one-on-one engagements.

So the question is: With this "x" number of theater missile systems, which can be tested up to five, but not above, with a nuclear warhead, what would be the Soviet confidence in them?

The JCS has to answer your question. What would the confidence of our forces to go through? Would they be willing to go down to 1,000? I think it is an excellent question, but it demands a lot more analysis and attention that has been given by anyone to date.

Senator BIDEN. Thank you. Would each of you speak to that issue?

Mr. RHINELANDER. Senator Biden, let me give you my views. I felt the SAM D, or the SAM Upgrade Issue, as we called it during the SALT I days, exaggerated the threat of the upgrade of the Soviet system. But many people felt it was real.

And I do not think we could have had support from the Pentagon of going forward with the ABM Treaty without dealing with that issue the way we dealt with it. As you may recall during the Reagan years, there were significant comments in terms of the Soviet testing of the SA–12, I believe it was, at that point in time.

Now, my answer to your question is whatever my views would be on that, I do not think you would have the political support in the defense community, and I do not think you would have the political support in the body politics at large, to go forward with a START III under those circumstances. That is a guess on my part, and it is a political judgment, not a technical one.

Further, while I cannot see any movement yet from the British, the French, or the Chinese to either cap or reduce their strategic forces, this kind of capability, while we could certainly defeat it, particularly if we went with penetration aids which is the classic response to any kind of defensive system, I think this would give another argument, and perhaps one which they would not move off of, for the French, the British, and the Chinese to say, "No, we are going to maintain what we think necessary, and in light of these kinds of defensive systems, we are not going to go down."

If those three are unconstrained, I do not think you will get the U.S. and Russian forces down to 1,000. You may get to the 1,500 level before that, but from that point in time forward I think we are going to have to look more broadly.

And I think this kind of development would be almost an insuperable barrier to moving what will be difficult anyway.

Mr. KEENY. My view is that if Russia had a defensive system involving their existing ABM system, supplemented by the kind of system that would be permitted under this proposed interpretation by the Clinton administration, we would be faced with several thousand defensive missiles, nuclear armed.

Personally, I believe that it would be technically possible for the U.S. to maintain adequate deterrence at levels of 1000 under a START III agreement by aggressive use of technology, of penetration aids, and tactics. However, I am confident that in those circumstances the military and the defense community would violently oppose reductions to those levels, and that it would not be a politically tenable path to take.

And I will just underscore, that that kind of a defense might really negate the British, French, and Chinese deterrents, for what they are worth. And I think it would, as I said in my statement, persuade them not to reduce their present strategic nuclear forces, and probably not even to cap their existing forces.

The CHAIRMAN. Has Dr. Lewis responded?

Dr. LEWIS. On this particular question I agree very much with what Mr. Keeny just said. I think it is important that you understand that the administration's proposal will impose very few testing limitations on the Russians.

What counts in this kind of system, one that intercepts in space, is not really the speed of the interceptor or the speed of the target, it is their relative speed.

In other words, for a strategic target coming in at seven, a THAAD coming in at like three, the relative speed is ten. For a theater coming in at five, a THAAD at three, it is eight. So it is about a 25 percent difference.

But there is nothing in the administration's proposal, although the Russian proposal would do this, that says you cannot accelerate your interceptor with an extra stage up to five to test at the full ten closing speed.

These kinds of tests would be perfectly permissible under the administration's proposal. You could have quite high confidence in the system by testing it.

Senator BIDEN. What, in your view, anyone who wishes to speak to it, what would be the incentive for China to restrain in the future their strategic force if Russia and the United States develop a very sophisticated, practical defense system? Would there by any, or would they—or am I just off base even worrying about that?

Mr. RHINELANDER. Senator Biden, I am not sure they would have an incentive, but I do not want to leave the impression that I think they have incentives right now to move forward.

We have not had, to my knowledge, any dialog with the Chinese on this issue. There is no suggestion that they are going to move. I think they are going——

Senator BIDEN. I am not suggesting they do.

Mr. RHINELANDER. But I think if, in fact, this were to be done, whatever the chance might be, I think it disappears.

Senator BIDEN. That is the point I am trying to get to. I mean obviously one of the things—look, the truth of the matter is, in my view, the reason why there are not that many people here today on this important issue, and the reason why it is not such a big deal in the minds of the vast majority of Americans is the that the vast majority of Americans and policy makers have discounted Russia. Russia is no longer a factor.

It is a factor, but I think psychologically it has been discounted. The idea of whether or not this would have an impact on strategic forces is not something that really is in the consciousness of most people today.

And all the focus on, and the appeal here, is on the rogue nations. And the rogue nations, the rogue nuclear powers, who are, in fact, either exporting technology, missile capability, and/or nuclear capability, are attempting to develop it for themselves. And so there is a great appeal. I mean this obviously has great appeal.

I think Dr. Graybeal is correct. If we are sitting here as policy makers and we look out and look at North Korea, you have a couple of alternatives. If you are sitting near Japan—North Korea moves unchecked, assuming that occurs, which I hope it will not, but assume it does.

It is not beyond the realm of possibility. And Japanese policy makers, unschooled physicists like me, sitting in the Japanese government, are going to sit there and decide on one or two things. They are either going to decide they have to invest a great deal of money in intercept capability, or become a nuclear power.

This is, to use an expression that seems out of context, this is not rocket science. You do not have to be a physicist to figure this one out. And the last thing most of us want to see is Japan as a nuclear power, further proliferation of significant nuclear capability. And so it has great appeal.

But one of the things that I keep running up against in my calculation as to whether or not to support the policy, let alone whether or not it can or cannot be done presently under ABM, amended or unamended, is what the ramifications will be in terms of proliferation, proliferation of nuclear capability.

It seems to me that all the impetus is in that direction. I have never met a military man who says let us take a chance on the other side not having tested their capability.

We have no confidence, Dr. Graybeal, on anything we have not tested. No military person is going to rely on a system we have not tested.

But I have never found a military person who is willing to say, "We will not rely on the capability of an untested system that we project might have a capability beyond that which is tested."

I have not met one of those guys yet, and I have been here 22 years.

So I think that Mr. Rhinelander is correct. The prospect, if the Russians develop a system remotely approaching this, I cannot imagine us being able to produce the political wherewithal to further reduce strategic nuclear arsenals.

I just cannot imagine that happening, because we always use it both ways. We always come along and say—for example, on Krasnoyarsk, I did not hear a single solitary military man or expert come before this committee during that period and say it was not a clear violation of ABM, although it had not been demonstrated.

It did not meet your test, Dr. Graybeal. We did not have national technical means at the front end. We did later. But we did not in the beginning.

Dr. GRAYBEAL. We did when we discovered it. That is how we discovered it.

Senator BIDEN. Well, talk to me about that a minute, Dr. Graybeal. Assuming we apply the same standard you are suggesting as to what was—what article was it, article——

Dr. GRAYBEAL. Article VI (a).

Senator BIDEN [continuing.] Article VI (a), what constitutes a capability, and you say the test should be national technical means, is that correct?

Dr. GRAYBEAL. I am saying that that is the only means for verification of the ABM Treaty. There are no on-site inspections. We must rely on national technical means. That is all we had in 1972, that is all we have in 1994.

Senator BIDEN. So Mr. Rhinelander's point about if we had the same—if we collapsed "a" and "b," like the administration wants to do, to one standard, which is the standard that you believe is the one that is synonymous with national technical means, demonstrable, demonstrate it, that we would have been able to—Krasnoyarsk, unlike Mr. Rhinelander says, Krasnoyarsk would have met, or would have been out of bounds regardless, right?

Dr. GRAYBEAL. No, sir. National technical means is what discovered Krasnoyarsk during its construction. Mr. Rhinelander's point is, that it never came on the air.

But we knew, from national technical means, what its capabilities would be, where its location was, and those two were clear violations of the ABM Treaty. His only point is that it never became operational, but we still knew what its capabilities were. But that was all done by national technical means.

Senator BIDEN. Yes.

Mr. RHINELANDER. Two points, Senator Biden. I think you first of all start with national technical means. Whether or not we ever try to get more in the ABM Treaty is a separate issue.

At the time we negotiated, the Russians would not accept more. Since 1987, you have had on-site inspections. But leaving that aside, you have to start with national technical means.

The difference here is obviously, in the Krasnoyarsk situation, the Soviets were putting up this huge radar. It looked identical to some other huge radars around.

And we said, "That is it."

If you go to a demonstrated test, though, and if you take it literally, you are saying, "Until that thing is turned on, we will not challenge it."

Let me give you an analogy.

I have a five-speed turbo-charged automobile, and you come to me and say, "I bet that thing goes faster than the speed limit."

And I say, "No way. Come out on the highway with me."

And we go in first gear, and I go at 30 miles an hour and I say, "Look, I have proven it to you now, it is always under the speed limit. I demonstrated that."

I am not sure you would be or should be satisfied that my machine could not go more than 55. You should not be, because it clearly can.

I think this is an analogous kind of issue. My answer is it clearly starts with national technical means. But we should not in the future, as we did not in the past, give up the right to challenge in terms of capabilities.

We have never tried to quantify what capabilities meant. I have been urging us to do it. It is very difficult to do. And it may be better to leave it unquantified. But I think we would be very foolish to go just with the standard that unless you have tested something above a certain level, we are going to view it as treaty compliant.

Senator BIDEN. Is that what you are saying, Dr. Graybeal, unless they test——

Dr. GRAYBEAL. I am saying two things, sir. One is that the demonstrated capability is the criteria which must be applied. But I differ with the administration on one basic point.

The administration is talking about testing against targets going less than 5 kilometers per second as being the way of being demonstrated. There are lots of other demonstrations that can prove capabilities, and must be taken into account. And I will give you an example.

Senator BIDEN. Make it simple for me. Stick with Krasnoyarsk. OK? They never turned on the switch, so it was never demonstrated. Does that not mean——

Dr. GRAYBEAL. The demonstration part there, sir, is that this is a radar identical with radars that we knew were large-phased array radars, which were used for ballistic missile early warning.

The demonstration was seeing it there, there it is, it exists, and its parallels and capabilities with the activities of other LPARS. So we knew that. It did not have to be turned on. We knew what it was going to be, because of its design characteristics, what we could see from the photography.

Senator BIDEN. Well, could you not do that with the—is that not what Dr. Lewis did? Did you not just look at the design characteristics of THAAD and come up with these models?

Dr. LEWIS. Yes. That is what we did. And as I also showed you, we also just took some of the Ballistic Missile Defense Organization's own curves.

But on this question I would add that we are talking about national technical means of verification. This is used to tell you that the other side is complying with the agreement. That has nothing to do really, except in this one aspect, as to whether or not it is a good agreement.

They might be complying with the treaty, but if it allows them to deploy strategic defenses, what have you achieved with that agreement? So verification is part of the treaty, but it has to be kept somewhat separate from the question of whether or not it is a good agreement.

Senator BIDEN. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you. Senator Kerry.

Senator KERRY. Mr. Chairman, thank you.

I apologize for being late, and I apologize because I cannot stay very long. But I did want to come, because I want to underscore the importance of this. I want to associate myself with the concerns expressed by the Senator from Delaware.

I think multilateralization is a good goal. It is an obvious goal, because of what has happened, the breakup, need more parties rather than fewer to this concept. There seems to be a contradiction, though, in the goal of the multi lateralization, than the he demonstrated capability and the ATBM-ABM distinction that you are seeking. And I just want to express my serious concern about it.

I do not have time to go into all the questions now. We had some aspects of it earlier in a prior hearing. Maybe, Dr. Graybeal, Mr. Rhinelander, you can help me understand it.

But there is a—I fear the opening of a can of worms here, that your nice distinctions are simply not going to address or be able to contain—in the Krasnoyarsk radar you can get in a whole set of questions about where you get into the demonstrated capability or do not, et cetera.

And it seems to me that it is working in the direction that is directly contrary to the opportunity that has been provided us by the changes in the post-cold war world that we are witnessing.

And who knows where we wind up, with whatever direction China might go in, or Russia might go in, or any of these Commonwealth States, in the future. I do not know. But it seems to me that if you open up the potential for this distinction on the practical side, or just the strategic, the technologies that you are inviting people to explore have such enormous ability to be able to be then applied, with very minor alterations.

I mean, to me this is just a continuation of Star Wars. It is almost what—it is errant and the Patriot struggle sort of magnified, if you will, which is also a continuation of Star Wars.

The minute you have an ability to knock down a missile at the velocity distinction that we are now drawing, it is really just a small leap, scientifically, beyond that to have the ability to do it strategically.

In fact, if I am sitting on the other side, and I know that the United States has developed this right up to the distinction of velocity, what is it, .5 of a second or something, 5 kilometers per second.

So once you have the 5 kilometers per second, if I am a general, or a strategist, or even a politician on the other side saying, "What do they really have?" you have to worry immediately that it is not just the 5 kilometers, but they can actually do it considerably faster than that.

And it is maybe changing one chip, or something else, in the configuration, that suddenly gives them the ability to do it at the strategic level. And once you have done it at the strategic level, we are right back where we were, in terms of the proliferation that was raised by my friend.

In fact, you are venturing into the realm of first-strike capacity, once you have opened up that window, because if you have the ability to knock down anything that comes at you, you no longer have the threat of retaliation, which means you have created first-strike capacity.

So I am just not sure this has been thoroughly vetted. Now, maybe you can answer all of those concerns. I do not think you can.

Dr. GRAYBEAL. I will attempt to answer it, but I would like to make three points very briefly. One, there is what I noted in my statement: the rationale for the ABM Treaty remains valid today.

Russia is there with strategic forces, and this concept of stability that underpinned the ABM Treaty exists today.

Now, some people argue, "Oh, but Russia is our friend, our ally. We do not need the Treaty."

Senator KERRY. What is that theory? The theory that underlies it was the old concept of mutual assured destruction.

Dr. GRAYBEAL. That is absolutely correct.

Senator KERRY. And mutual assured destruction means you both know you can destroy each other; so, therefore, there is——

Dr. GRAYBEAL. Right.

Senator KERRY [continuing.] No advantage to doing it.

Dr. GRAYBEAL. Right. And that rationale still exists today.

Senator KERRY. And if you can knock down their missiles, you no longer have mutual assured destruction.

Dr. GRAYBEAL. And now, Senator, you have a very difficult decision to make. You want to maintain this rationale, which was established in 1972, and which we both agree is valid today, but the world has changed significantly since 1972.

In 1972, we were not concerned about the rogue nations threat; we were not concerned about a Taepo Dong–2, with 3,500 kilometers. Some people are even concerned, I am told, about this missile being developed into an ICBM which could threaten the United States. That is not in the near term.

Certainly this missile is a near term threat to our forces. Now, you are faced with a decision. Are you going to permit effective theater missile defenses so that American troops, men and women, deployed overseas are going to be defended against a threat that is going to be real when we want to exercise U.S. options?

Are you going to clarify a 21-year-old treaty to assure this can be accomplished, to bring it up to date, or are we going to stick by a criteria of 1972 and say, "Absolutely not." No President or Senator can go to his constituents and say, "Well, I did not want to clarify, amend, or modify a treaty, because I think the viability of that treaty is more important than recognizing that the world has changed."

So I think there is a real hard decision here, Senator.

Senator KERRY. Well, it is, if you pose it that way. But may it is not that hard if you make a different set of assumptions. You may be coming at this "bass ackwards." I mean, the point is, rather than talking about building systems which not only conceivably threaten your strategic structure, which also make the warfare more volatile, why not move in the same direction that we have been moving with respect to strategic, which is to put our energies into restricting the capacity of that kind of warfare to be legal?

Now, that is what we did with respect to chemical. That is what we did with respect to biological. Now, it seems to me that it is a lot more sensible.

And I am not being parochial here. But it happens to fall into Massachusetts's component of what Raytheon does with the Patriot, to go to the next tier of the Patriot, where you become defensive capable, with a rationale that does not open up yourself to this strategic exposure.

Now, there I am protecting my troops, but I am not doing it in a way that simultaneously threatens much larger issues and even threatens this country in a larger way. That is why I say you are coming at it maybe backward, is that we ought to be moving in that other direction.

I am all for protecting the troops with theater, you know. But the way to protect them, it seems to me, is to have agreement that we are going to have verification on outlawing certain kinds of weapons.

Dr. GRAYBEAL. That may be difficult in some countries.

Senator KERRY. Do you want to address that?

Dr. LEWIS. Yes. First, I would like to comment on your point about breakout. I think that even if you were concerned about this 5-kilometer-per-second limit affecting your ability to rely on the system, and I will tell you that I do not think you should be, clearly, you could break out of that limitation very quickly with just a few missile tests.

Now, on the point where you——

Senator KERRY. Are you saying that we should not be concerned about it?

Dr. LEWIS. No. No. I am saying—what I said before you came into the room, and in my written statement, is that the 5-kilometer-per-second speed limit is not a serious problem for developing strategic defenses.

The administration's proposal will not prevent you from doing that. And I am just adding to what I think what you were trying to say, is that even if you were concerned about the testing limit, the breakout time would be very short.

Now, I think this is the basic difference between Dr. Graybeal and myself in this situation. We both agree that there is a threat. We might disagree on the extent of it. And we both agree that there is value in the ABM Treaty.

But he is here telling you that there is a way you can have your cake and eat it too. You can have the treaty and you can highly effective defenses. I am saying the administration's proposal will not do that.

I have not heard anybody yet tell me how you can do that. And I think it is important that if people are going to make statements like that, they provide you with some analysis showing how that is possible.

Senator KERRY. Are you saying it is possible? I do not have time unfortunately to stay for the whole thing.

Dr. GRAYBEAL. In my statement you will see that I believe that you can have both an effective theater missile defense to meet the emerging threat, and protect the ABM Treaty by adopting the approach taken by the Clinton administration for allowing testing for up to 5 kilometers per second.

My colleagues say that that will permit you to have an effective ABM capability. And if that is the point in Russia——

Dr. LEWIS. Right. That is exactly what I was saying in terms of——

Dr. GRAYBEAL [continuing.] Your stability part comes back to the process. But I maintain that unless that system is actually tested or demonstrated to have that capability, they will be unsure of its operational utility.

We have lots of ways of penetrating the Soviet Union, including penetration aides on our ICBMs, including advanced aircraft, Stealth Aircraft, and other things. So I am not worried about the erosion of deterrence, but I am worried about being precluded from having effective defenses for our forces overseas.

Mr. RHINELANDER. Senator, I think you really have to ask the question, what is the threat. If the threat is looked at as the Scud-type extended, you know, the 1,000 kilometer or so range, I do not think anybody here would disagree that you could go forward, assuming the systems are thought to be effective, say, the Pac 3, and have those mobile systems available for the defense of troops overseas, et cetera.

The problem with what is being proposed is based on a worst case. The threat they are talking about, defending against, is basically the Chinese missile in the hands of China and Saudi Arabia.

Now, the suggestion is made that this will be the threat of the future. I think that is highly questionable. But that is one of the issues you are going to have to address. Even though it is technically possible that the Chinese will be selling these missiles all over the world, they have agreed not to do it. They have agreed to abide by the missile control technology regime.

While North Korea is in the development phase of three missiles, their first phase is not doing very well in the test program. The second and third one, with the longer ranges, you know are way behind.

So I think you have to look at the threat issue. And what I would suggest to you, what you are dealing with, is a threat which is the worst-case analysis, and certainly not the near-term one. And so you have to distinguish that, the near term from the far term, and make judgments now as to how far you ought to go.

The more capable your defensive system is, without qualifying it, the more you are going to erode the whole ABM Treaty. So you have judgmental calls you have to make along the way.

Senator KERRY. Well, I respect that enormously. And I think this issue of threat is a very important one. I mean, Dr. Graybeal, let me tell you, I revel in our technological capacity in this country, and I am marveling constantly at the advantages that it gives us.

At the same time, you have to really measure this question of threat. It seems to me that the post-cold war world is one where we have been heretofore, I am not sure we still remain that, maybe we ought to be, but prepared to take risks against nations where, frankly, the risk of an all-out conflagration is not that great, and even where the risk of a major kind of land involvement that is balanced is not that great.

I mean let us face it, the judgments we were able to make in the Gulf, there was no one who had any illusions that it was somehow balanced. We knew that it was a matter of days or months, and that is exactly what it turned out to be.

It seems to me that if we were facing—I mean I am not—you are beginning to hear people talk about whether or not the conventional war days may not be outdated and outmoded. Who knows? You certainly cannot take that for granted.

And you clearly have to be prepared for any eventuality. But there is a certain reality in the unwillingness of two nations with this mutuality of technology to be willing to square off.

Likewise, down the road, if you both have this missile capacity, antimissile capacity, and both your troops are threatened on the ground, there is a greater likelihood that you are not willing to square off. And it may be that we are only willing to square off where there are some very clear advantages that we see.

I am not sure that you may not, therefore, create more dangers in the potential of making bad choices down the road, if you proceed down this route that is being suggested, than if you do not.

And you may be far better off trying to hold onto status quo, and pressure other countries not to develop these, and to develop the protocols by which you verify and guarantee that they do not, than allowing yourself and them to get you into those more volatile and dangerous square offs down the road.

Now, I can see several stages in the history of our weapons development where we would have been far better off with the concept that so often was vilified by defense experts, which was the freeze.

If we had frozen prior to the Mirving, we would have been better off. If we had frozen at a certain point in our nuclear submarine development, we would have done it where we had silent subs and they did not. But because we did not, we allowed them to develop silent technology and so forth.

So I am not at all persuaded that those who led us down the road, how often it has been in the interest of sort of chasing the technology curve, rather than really adequately thinking through this threat question.

And so I am going to proceed—I say I am going to proceed. If one Senator is willing to exert whatever effort I can, together with the chairman of the subcommittee, who I know has a deep interest in this, Senator Biden, and others, to really try to get us to be very measured and careful about this.

It is not a predilection that, sort of knee jerk, says, “Do not build any weapon, or something.”

I do not accept that. I have great faith in certain aspects of the technology and certain areas to make us stronger rather than weaker. But I also recognize the history of this race. And we have to be very careful about it.

Mr. Keeny. I would like to support your analysis of the problem. I think it is clear that an adequate defense against realistic threats to our forces overseas can be provided by an improved Patriot or ERINT system, which are a small fraction of the cost of these other approaches, and should be adequate to meet military concerns about the threat they might face under certain circumstances.

I think the military should really assess this problem very carefully in order to understand their own priorities. We are moving into a commitment of $30 or $40 billion for the package now being proposed by the administration, including $15 billion for THAAD.

I think given realistic assessments of the kind of warfare and the kind of threats we are going to face, this ballistic missile threat is going to be the least of our military problems, and the least of the dangers faced by our servicemen and women overseas. We should develop some realism in what kind of defense budget we are going to structure.

I think that developing a Patriot that really works, or some similar system, is fully adequate to meet the foreseeable threats that we will face. The circumstances where people will be firing 3,500 kilometer conventional warheads at service people in developing world conflicts seem, indeed, extremely remote.

Consequently, I believe the defense we need can be developed with systems that are consistent with the existing ABM Treaty. And there is no need to up the level of demarcation to this 5-kilometer-per-second criterion, which I believe is just opening the gates to full-scale development of potential systems that have significant strategic capability, or as has been suggested, could develop that capability very quickly on breakout, if some further testing were required.

Senator Kerry. Well, I appreciate your comment. This really needs a lot of thinking. It should not be done without care. And I am sure it will be.

Mr. Chairman, I think it is great you are having these hearings, and I hope we will continue to analyze the threat issue that has been raised. I think that we need to understand that better anyway, notwithstanding this particular question. So I hope we will do that.

And I apologize. This really is worthy of a much longer dialog, obviously, and I apologize for not being able to stay longer.

The Chairman. I concur with you, too, that obviously the threat issue is just as important as anything else, or more important.

I think several of you stressed concerns that the administration's proposal could undermine the ABM Treaty if we moved ahead. I would like to ask each of you if there are constraints or limitations that you believe should be included in order to preserve the effectiveness of the treaty.

First you, Mr. Keeny.

Mr. Keeny. Well, I think the treaty as it stands and as it has been interpreted during the past 25 years is still adequate to the present circumstances. I do not think that any amendment or modification to the treaty is required.

If people want to formalize the criteria for permitted testing against reentry vehicles at the 2- or 3-kilometer-per-second, I would see no objection to that, since it is part of the negotiating and ratification history of the treaty, and its subsequent practice.

But I do not believe we should go beyond that at this time, on the basis of the failure to identify an overriding threat that requires such a modification, as balanced against the very serious potential consequences of undermining the ABM Treaty, preventing substantial future reductions in strategic warheads, and possibly seriously undercutting a consensus in support of the indefinite extension of the Nonproliferation Treaty, which tries to get at the core of this problem, so you do not have to face it in the first place.

The CHAIRMAN. Thank you. Mr. Rhinelander.

Mr. RHINELANDER. Mr. Chairman, there is considerable merit in delineating between the parties, U.S., Russia, and whoever else is with the other side, what the ground rules are in this area.

We have not done it to date. This is going to lead to continuing debate, disagreement, allegations, you know, as we have had over the last few years, so I think it is important that it be done.

My quarrel is not that there is a proposal on the table, but with the proposal itself. I suggested in my statement that what would be desirable would be to lower the 5 kilometer threshold.

If it were in the 2- to 3-kilometer-per-second range, or maybe the 3½-kilometer-per-second range, this is within the gamut, or the ball park, of what we talked about earlier. It seems to me that would deal with the large principle threats.

It would be a judgment call between the Senate and the Executive, if you go to, say, a 3- or 3½-kilometer-per-second standard, whether or not that would rise to the amendment level, which would take the formal advice and consent, or whether it simply be considered an interpretation.

I am not sure if you go and accept the 5 kilometer per second, as the administration has proposed, whether there are effective corollary provisions that can really bound this problem.

I suggest five or six corollaries in my statement, which ought to be looked at, but I am not yet persuaded, because I have not done the work—I have not spent enough time on it—to determine whether or not they would be able.

Clearly, when you are dealing with a defensive system, the sensors you use are critically important, and not just the interceptor missile. We have been talking this morning simply about the capabilities of the missiles themselves.

The CHAIRMAN. Right.

Mr. RHINELANDER. The more capable your sensors are, the less capable your missile has to be. So there are a bundle of questions that have to be looked at, if you stay with the 5 kilometer per second target vehicle test.

The CHAIRMAN. Thank you. Dr. Graybeal.

Dr. GRAYBEAL. I do not believe any amendments to the ABM Treaty are required. But I do believe very strongly, and I agree with Mr. Rhinelander, that it is absolutely necessary that these provisions of the treaty be clarified, there be a mutual understanding of what is limited and what is not limited, and this must take into account the new world situation.

I remind the Senators that both Russia and the U.S. have recognized and have agreed on the need to defend against missiles of these ranges. Exactly how this is presented to the Senate I do not know.

I also remind you that you have agreed to the demonstrated capability. The Senate has put that into law. I do believe, though, there are many additional things that could enhance the viability of this treaty, such as confidence-building measures.

If we go with the demonstrated capability, and if we go with 5 kilometers, I think there are several confidence-building measures which would enhance confidence in the treaty, for example, by restricting deployment areas, by observing tests, activities of that nature. These do not require writing a whole new verification regime for the treaty.

I think your committee and others should give their attention to what additional confidence-building measures would enhance the viability of the treaty. Thank you.

The CHAIRMAN. Thank you very much. Dr. Lewis.

Dr. LEWIS. I think there is no question that you can come up with an agreement that would permit theater interceptors that would not pose a threat to strategic missiles.

Now, the kind of guidelines that Mr. Keeny and Mr. Rhinelander talked about in, say, limiting perhaps the 3-kilometer range, I think would do that, provided you kept the altitude limit. Without that altitude limit, and without a speed limit on the interceptors, I am not sure that would do it.

But the real point I would want to make is that while there is no doubt you can come up with limits that would prevent theater systems from endangering the Treaty, it is not clear that those limits would also permit THAAD and similar systems. You may have to lower your standards considerably on those systems and go to less-capable systems.

The CHAIRMAN. Thank you very much, indeed. I thank the four of you for being with us today. It has been a good hearing. There will be more. I appreciate your input. The hearing is adjourned.

[Whereupon, at 12:20 p.m., the hearing was adjourned, to reconvene subject to the call of the Chair.]

APPENDIX

RESPONSES OF JOHN D. HOLUM TO QUESTIONS ASKED BY SENATOR PELL

RUSSIAN-CHINESE

Question. How would the Russian deployment of a THAAD-type system affect the Chinese deterrent?

Answer. ACDA respectfully suggests that the question be directed to the Intelligence Community.

NUCLEAR TESTING

Question. Would you expect Russian THAAD-type deployments, if in prospects to affect the British, French or Chinese perception of the need for nuclear weapons testing?

Answer. No. The U.S. would not expect Russian deployment of theater ballistic missile defense systems like the U.S.-proposed THAAD system to create additional U.K., French, or Chinese requirements to conduct nuclear weapons tests.

NPT EXTENSION

Question. What would you expect the impact, if any, of prospective U.S. and Russian THAAD deployments on prospects for the successful negotiation of an extension of the NPT at the 1995 review conference?

Answer. It is doubtful that any decisions concerning THAAD deployments would have an effect on the prospects for the indefinite extension of the NPT. The weapon system is purely defensive in nature and does not contain any nuclear components. Those parties to the NPT that have expressed reservations about indefinite extension are concerned primarily with issues such as the CTBT, nuclear disarmament, and the level of peaceful nuclear cooperation and assistance to the developing world.

RESPONSES OF LT. GEN. MALCOLM R. O'NEILL TO QUESTIONS ASKED BY SENATOR PELL

VALIDATED TMD REQUIREMENTS

Question. Are there validated requirements for the overall TMD program and the various component programs? Describe those that have been completed and your plans for additional requirements documents.

Answer. Yes, the CAPSTONE Ballistic Missile Defense Operational Requirements Document (BMD/ORD) serves as the requirements document for the overall BMD system. It addresses both Ballistic Missile Defense and Theater Ballistic Missile Defense for the Continental U.S. and overseas threats. We have lower level ORD documents that will specifically address various components of Ballistic Missile Defense, but will remain consistent with the concept within the overall arching ORD.

USSPACECOM/J5 was tasked by the JROC in 1991 to be the responsible organization for the BMD ORD and to represent the theater CINCs requirements for TMD. In the ORD are requirements that support the CINCs and the JROC validated the key parameters, on December 10, 1992. The latest approved version of the BMD ORD is December 3, 1993.

TMD Component Program ORDs and Status:

(1) HATMD ORD—approved by Headquarters Department of the Army on January 22, 1992, contains the requirements for THAAD and the GBR.

(2) Patriot Advanced Capability (PAC–3) ORD (version 1.3)—approved by the Army Assistant Deputy Chief of Staff for Ops, Plans, and Force Development, December 9, 1993. The JROC approved key parameters for this ORD on January 21, 1994.

(3) Corps Sam ORD—approved by the Army DCS Operations on October 5, 1993.

(4) Aegis Near Term Tactical BMD ORD—approved by the Deputy Chief of Naval Operations (Resources, Warfare Requirements & Assessment) (N8) on December 30, 1992.

(5) Standard Missile—2 Block IVA ORD—approved by the Deputy Chief of Naval Operations (Resources, Warfare Requirements & Assessment) (N8) on December 30, 1992.

(6) Air Launched Ascent/Boost Phase Interceptor ORD—In the planning stage and should be approved before the end of year.

There are no other Operational Requirement Documents planned for the various Theater Missile Defense component programs. However, as you may know, these documents will be constantly monitored to insure that we meet the most current and up-to-date requirements requested by the CINCs.

TMD SYSTEMS RATIONALE

Question. Describe the rationale for TMD systems with capabilities and characteristics beyond those possessed by THAAD. What missile threats and engagements scenarios would require you to deploy systems such as the Navy's upper tier program and the Air Force's boost phase program?

Answer. The Navy Upper Tier and Air Force Boost Phase programs have similar, but not the same, capabilities and characteristics that complement THAAD. These complementary missile defense capabilities are required to meet the wide threat spectrum that TMD systems might face. This threat spectrum dictates the need for systems that employ various technologies to achieve intercept and that engage threat missiles at high-payoff points in their flight trajectory. Ground-based upper and lower tier defenses combine to provide near leak-proof terminal defense of key assets and population centers. A boost phase tier would offer additional protection against warheads containing early release submunitions. While ground-based systems (PAC–3 and THAAD) have demonstrated lethality against submunition warheads, boost phase interception allows engagement of a very threatening subset of this threat class. In cases where the threat missile releases its submunitions very early in its flight trajectory, boost phase systems target these missiles at this early stage. This makes it possible to engage one target, where alternatively (i.e. later) there would be many, and to do so over enemy territory. This is an especially attractive engagement profile where chemical and biological agents are involved.

Similarly, the benefits of a Navy upper tier system derive from the inherently mobile character of naval platforms. Envisioned to engage threat missiles at altitudes and ranges comparable to the ground-based THAAD system, the Navy upper tier will be particularly valuable in immature theaters and littoral areas where early arrival and deployment flexibility are required. In such cases, a sea-based upper tier system can provide critical initial protection against TBMs as ground forces, including but not limited to ground-based TMD assets, are moved into theater.

MULTI TIER TMD REQUIREMENTS

Question. Is a multiple tier TMD system required to meet the requirements described in your answers to your question above?

Answer. Yes, a multitiered TMD system is required to provide the required confidence level of successful engagement of threat TBMs. A multitiered. operational concept takes advantage of several engagement opportunities and a variety of technologies to support those engagement opportunities.

PROTECTION OF CIVILIAN POPULATION CENTERS

Question. Is protection of civilian population centers included in your requirements? If so, describe the technical and logistical factors involved and how these differ from point defense?

Answer. The Commander in Chief (CINC) has responsibility to prioritize the assets within his area of responsibility for defense against Theater Ballistic Missiles (TBMs). Priorities are established based on the enemy threat, active defense assets available, political situation, and relative importance of the asset. Population centers may be among the CINC's priorities for defense from TBMs. Therefore, defense of population centers against TMBs is a requirement.

In order to provide a population center with the same low probability of penetration by an incoming ballistic missile as our expeditionary forces, it maybe necessary to provide a combination of capabilities. Upper-tier systems such as THAAD provide the opportunity to destroy an incoming TBM at extended distances away from the population center. They minimize damage incurred due to debris, chemical agents, or nuclear effects caused during destruction of the incoming warhead. Lower-tier systems such as PATRIOT are necessary to protect the population from short range missiles and air breathing threats. When coupled with an upper-tier system, the lower-tier system increases the probability of destroying a long range TBM, but there is risk of collateral damage to the population center if the upper-tier system fails and the lower-tier system succeeds in destroying the TBM.

The probability of destroying long range missiles may be increased without the benefit of a lower-tier system by increasing the number of upper-tier shots at each engagement opportunity. This provides the benefit of maximizing chances to destroy the missile without significant collateral damage, but results in excessive intercept attempts.

From a ballistic missile defense perspective, the key differences between defense of a population center and a point defense concern size, density, and vulnerability of the defended asset. Since a population center exceeds a point target in each of these areas, a greater number of active defense systems would be required to provide for its defense. This is especially true for a lower-tier defense where the area of the defended asset may exceed the predicted footprint of the lower-tier system.

A population center's requirement for additional active defense systems to provide for its defense, may be partially offset by its proximity to transportation nodes, the industrial base, and logistics bases. The logistics burden to support the active defense systems is less taxing near a population center than a point target which may be more remote.

SPACE-BASED SENSOR REQUIREMENT

Question. What is your requirement for space-based sensors in support of the TMD? What do space-based sensors add to the capability of a TMD system? Distinguish between existing early warning systems and future systems such as Brilliant Eyes.

Answer. Space-based sensors are required for launch warning, launch point and impact region estimates, and cues to the interceptor fire control radars, per the approved USSPACECOM ORD for TMD Space-Based Warning, 004–91–1. Space-based sensors provide the earliest possible warning of a launch; by virtue of their on-orbit presence, They are always the first systems on-scene in every theater. Today's systems (TALON SHIELD and JTaGS) provide coarse cuing that will enhance footprints defended by the GBR/THAAD and SPY–I/Standard Missile systems. Future systems such as Brilliant Eyes will provide higher-quality cuing information, enabling single-beam acquisition by the fire control radars and significantly larger defended areas.

ALLIED SUPPORT OF TMD

Question. Are American's allies supportive of our present TMD plans and our efforts to clarify the ABM Treaty to accommodate these? Be as specific as possible?

Answer. DoD strongly supports allied cooperation and involvement in our Theater Missile Defense (TMD) programs, and, consistent with Congressional direction, is actively pursuing cooperative initiatives with several of our friends and allies. DoD does, however, object to linking the obligation of authorized funding on the U.S. program to progress made in obtaining foreign participation and foreign investment in our programs. Such actions would adversely impact the execution of the TMD program by effectively reducing the TMD budget by up to 20 percent. The DoD budget for TMD has been developed to meet U.S. National Security goals and established military requirements and not unique allied or friendly nation needs. Theater missile defenses are needed to protect U.S. forward-deployed and expeditionary forces from missile attacks in theaters of operation throughout the world. A concurrent objective, the defense of allies from such attacks, would also be provided in many cases as a result of the defensive capabilities of these forces. In the case of an ally such as Japan, their TMD systems would provide protection to our forces as well as to their own forces and homeland.

Linking required funding levels for U.S. TMD systems to foreign government monetary contributions will have a deleterious impact on both the schedule and cost of deploying defensive systems for deployed U.S. forces. As in the execution of any program, adequate and predictable funding is essential for optimum program execution. In this case, neither adequate or predictable funding would exist, which would result in severe program impacts. Moreover, if friends and allies were to make significant monetary contributions to these programs, they could also assume certain imputed rights which the U.S. may not be willing or able to concede.

The current DoD approach to participation has proven to be effective in engaging foreign talent and resources in U.S. TMD programs with little or no risk to U.S. interests. Under this plan, each foreign participation effort is evaluated on its own merits with the objective of satisfying a U.S. national defense objective. Using established ground rules such as laws and policies governing the rights to research results, the DoD has successfully engaged in a wide variety of efforts with allied and friendly nations' governments and research entities to the distinct advantage of the U.S. TMD program.

Because of Standing Consultative Commission (SCC) regulations which require that discussions there be treated in confidence, we have not discussed details of the ABM Treaty clarification with our allies. However, they are aware of and generally supportive of our efforts to remove the Treaty's ambiguity regarding the demarcation between theater and strategic missile defenses. Their views on the advisability of any specific agreement cannot be ascertained, of course, until such an agreement is concluded.

THAAD/BRILLIANT EYES RELATIONSHIP

Question. a. What will be the relationship between THAAD and the Brilliant Eyes sensor program?

b. Will the THAAD utilize Brilliant Eyes?

c. Assuming that the THAAD will utilize Brilliant Eyes, does that change the size of the defended footprint that Gen. O'Neill testified to in closed session today?

Answer. The THAAD Technical Requirements Document (TRD) requires the THAAD system to meet all of its performance requirements while operating in an autonomous mode (no cuing information). In addition, the TRD requires the THAAD system to utilize any external sensor information, for purposes of cuing the TMD-GBR radar, as long as the information is available in the theater of operations. Sources of external sensor information would include Brilliant Eyes, now called the Space Missile Tracking System (SMTS), if SMTS is fielded and there is a mechanism to provide SMTS data to the theater of operations in a timely manner.

In his March 9, 1994 testimony before the Senate Foreign Relations Committee, LTG O'Neill described THAAD's capability to engage an ICBM utilizing stereo DSP cuing data. Stereo DSP data was assumed because DSP satellites are currently fielded and were utilized during DESERT STORM to provide cuing data to the Patriot System. Because of SMTS's ability to track ballistic missile warheads after booster burnout, SMTS would provide better cuing information against longer range TBM threats than stereo DSP. Thus, the defended footprint would increase based on the SMTS cuing. But in no case would such capability constitute effective defense against strategic attack.

SEA BASED UPPER TIER

Question. What will be the velocity and range capability of the Sea-based Upper Tier the so-called Navy "LEAP?"

Answer. Navy Light Exo-Atmospheric Projectile (LEAP) is one of several interceptor proposals for the Navy Theaterwide program. Navy LEAP has a Velocity at Burnout (Vbo) of 4.0 to 4.5 kilometers/second and a minimum intercept altitude of approximately 80 kilometers. The range capability is dependent upon ship position (i.e. interceptor launch position) relative to the target launch site position.

RESPONSES OF JOHN D. HOLUM TO QUESTIONS ASKED BY SENATOR BIDEN

Question. Does the INF Treaty pose any obstacles to the development of the THAAD system?

Answer. Because THAAD development requires testing against ballistic target missiles, Parties conducting these tests must address the following restrictions in order to remain compliant with the INF Treaty:

Specifically, paragraph 12 of Article VII allows each INF Party to produce and use booster systems that would otherwise be considered to be intermediate-range or shorter-range missiles as long as those booster systems are existing types and:

(1) The stages used in such booster systems are different from stages used in missiles listed as existing types in Article III (e.g., 55–20, Pershing II, etc.);

(2) Such booster systems are used only for R&D to test objects other than the booster systems themselves;

(3) The aggregate number of launchers of such booster systems shall not exceed 35 for each Party at any one time; and

(4) The launchers for such booster systems are fixed, above-ground and located only at R&D sites specified in the INF Memorandum of Understanding.

RESPONSES OF SIDNEY N. GRAYBEAL TO QUESTIONS ASKED BY SENATOR BIDEN

Question. Let us assume for a moment that the Administration's position is adopted as is. And let's also assume that the Russians decide to develop a system similar to THAAD. Could they develop such a system and give it significant ABM capabilities without acknowledging the fact—and without our discovering it?

Answer. In my opinion, the Russians could develop an ATBM system, but it is unlikely to possess the sophisticated hit-to-kill capabilities of the U.S. THAAD system. The Russian ATBM system would not have significant ARM capabilities unless it was tested in an ARM mode, for example, against targets traveling at maximum velocities above 7 km/sec. The Russians could assess its inherent ARM capabilities using simulations and computer models; however, I doubt that their military would accept such an untested system for strategic defensive purposes. If the Russians do test the ATBM in an ARM mode (against strategic targets), in my view, U.S. national technical means will be able to detect such tests; however, this question should be addressed to the U.S. Intelligence Community.

During the ARM Treaty negotiations, a member of the U.S. Delegation assessed the inherent capabilities of the Soviet SA–5 surface-to-air missile with a nuclear warhead utilizing data from Soviet LPARs for a point-in-space engagement. The analyses indicated significant ARM capabilities. The U.S. Delegation negotiated constraints on testing which could be verified by NTM in order to preclude the upgrading of Soviet SAM systems to give them significant ARM capabilities.

Question. Press reports indicate that the Russians have proposed—in the SCC—the development of nuclear-tipped theater missile defenses. Assuming this to be true, what complications does this pose to the U.S. negotiators?

In comparison to the THAAD as currently envisaged, what sort of capability would a nuclear tipped missile have?

Would you still support the Administration's position if the Russian proposal on nuclear-tipped missiles is accepted?

Answer. The ABM Treaty does not distinguish between nuclear and non-nuclear systems. ATBMs *per se* are not limited by the ARM Treaty. If the press reports are true, I believe that the United States should propose that the ATBM systems being developed on both sides should be non-nuclear. However, as noted below, I do not believe that Russian insistence on nuclear-tipped ATBMs would pose serious security risks for the United States.

If the Russian "THAAD" system was very similar to the U.S. THAAD, equipping it with a much heavier nuclear warhead would significantly affect its capabilities. Thus, a Russian nuclear- tipped "THAAD1' system would probably involve a larger missile with greater thrust. While a single nuclear-tipped missile would have greater capabilities in one-on-one engagements, a TMD system involving hundreds of nuclear-tipped missiles would encounter serious operational problems. In any strategic exchange between the United States and Russia, a nuclear-tipped TMD system would be vulnerable to nuclear effects from its own nuclear-tipped interceptors because the TMD system is a radar-based system. In addition, such a Russian system would be dependent upon data from Russian LPARs which are vulnerable to both U.S. attack and nuclear effects. In fact, a non-nuclear TMD system could have greater capabilities against a large number of targets than a nuclear-tipped TMD system. Russia might consider a nuclear-tipped TMD system useful against a Third World ballistic missile threat involving a few (1–10) ballistic missiles with nuclear, chemical, or biological warheads. However, the United States TMD systems do not plan on or require any nuclear-tipped interceptors.

I would still support the Administration's position if the Russian proposal on nuclear-tipped missiles were accepted for the reasons stated above as well as the penetration capabilities of U.S. strategic and theater systems. If needed, additional penetration aids could be added to our ICBM and SLRM forces at minimal costs. Moreover, U.S. stealth aircraft capabilities would penetrate these systems. However, questions of U.S. strategic deterrent capabilities should be addressed to the JCS and STRATCOM.

RESPONSES OF JOHN D. HOLUM TO QUESTIONS ASKED BY SENATOR SIMON

Question. Since the President and the Senate make treaties together, and since you have pledged to work with us on this matter, is it safe to assume that you will share with us your evolving thinking on proposed changes to the Treaty before you propose them in the SCC?

Answer. As it becomes clearer what form resolution of the demarcation question will take, we will of course be in close contact on matters including those issues raised by your question.

Question. If these proposed changes go through, is the Administration prepared to see the Russians, Ukrainians, Belorusians, and Kazakhs deploy highly-capable ATBMs throughout their territories at places of their choosing?

Answer. Since non-ABM systems and components are not limited by the ABM Treaty, any Party to the Treaty would be free to deploy such systems as it saw fit.

Question. Are there restrictions proposed on deployment, mobility, or transfers of these systems to other states? Wouldn't you agree with those that speculate that the Russian need for hard currency will compel them to sell these systems abroad, including but not limited to the Middle East?

Answer. Non-ABM systems and components are not subject to ABM Treaty limitations, including the non-transfer and deployment provisions of Article IX and Agreed Statement G of the ABM Treaty. The Missile Technology Control Regime (MTCR) places restrictions on the transfer of missile systems capable of delivering a payload of 500 kg to a range of 300 km.

I hesitate to speculate on what other nations may do in the future regarding arms sales. However, I do agree that we would need to continue to monitor such developments very closely, and consider arms control solutions consistent with our security interests.

Question. Please tell us what you think the Israeli reaction would be if Syria, for example, were to buy and deploy highly-capable ATBMs on their territory. Would it seriously weaken or erode the deterrent effect of Israeli missile systems?

Answer. The U.S. and Russia are the only suppliers for patriot-like systems. Russia has marketed their SA–10C and SA–12B at recent military arms shows. While we have not seen any evidence of sales to the Middle East, countries in that region might be interested in such a system. Currently there are no ATBM systems for sale on the world market that exceed the capabilities of Patriot. The U.S. has deployed Patriot ATBMs to a number of countries since Desert Storm. Israel has Patriots and is developing its own ATBM, the Arrow, with U.S. support. Any judgments about possible Israeli reactions to a hypothetical Syrian deployment of ATBMs would be purely speculative.

RESPONSES OF JOHN D. HOLUM TO QUESTIONS ASKED BY SENATOR LUGAR

Question. Is the U.S. TMD demarcation proposal the same as the so-called demonstrated standard? If not, how does it differ? In your view, is this proposal consistent with the Congressional finding on TMD demarcation contained in the FY 1994 Defense Authorization Conference Report—Sec. 234(a)(7)?

Answer. We are presently in the course of negotiations, and the U.S. demarcation proposal is thus subject to the changes negotiations necessitate. The initial U.S. proposal, the so-called "demonstrated standard," has undergone some refinement. I do not think it would be appropriate to discuss in detail the specifics of the negotiations, but it may be of note that no change to the Treaty itself is anticipated.

Question. Will the Senate's advice and consent be sought for any agreement reached on these issues? Provide the legal and other reasoning for your answer.

Answer. As it becomes clearer what form resolution of the demarcation question will take, we will of course be in close contact on the issues raised by your question.

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